



**ALIGNING DISPARATE PRACTICAL THEORIES  
FOR PEDAGOGIC CHANGE**

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## ABSTRACT

Amidst intensifying demands for simultaneous improvement of current performance, adoption of priorities relinquished by other community organizations, and innovation to meet future educational challenges, schools are being urged into a paradigm shift in pedagogy. Despite the rich resource of the literature of educational change, deep and sustained change remains partial and scattered.

This research examines whether it is the existing individual practical theories about learning, teaching and managing change, and the collective codes held by participants in pedagogic change, that facilitate or block innovation and, if so, what factors shape the outcome.

In a qualitative study, participants in structured programs of pedagogic change at the secondary level have described their own experiences. A total of 183 trainee teachers provided reflective written comments on their intensive one-year course, and 36 established teachers and 10 groups of students from two secondary schools were interviewed. The responses have been matched with principles asserted in the literature.

Memoirs and transcripts displayed practical theories and collective codes that were firmly grounded in early experiences, prior training and embedded values. They clearly facilitated pedagogic change for some, but blocked it for others. Change, if it occurred at all, was a process of learning to do familiar tasks in a different way. Participants preserved compatible practices, or assimilated new pedagogic knowledge and skills easily, or struggled to accommodate, or resisted strenuously, according to the practical theories and collective codes that were determining their current practices. Regular and sustained mentoring in an accepted alternative theory within a proximate group brought partial implementation, but contradictory theories amongst participants created serious time barriers and resource poverty.

Aligning the disparate theories is the first priority of any plan for innovation.

## DECLARATION

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis being made available for photocopying and loan.

SIGNED:

DATE:

15 August 2005

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## GLOSSARY

**accommodation** ‘Altering existing mental schemes or creating new ones in response to new information’ (Woolfolk, 2001, p. 591).

**assimilation** ‘Fitting new information into existing schemes’ (Woolfolk, 2001, p. 591).

**constructivism** ‘View that emphasizes the active role of the learner in building understanding and making sense of information’ (Woolfolk, 2001, p. 593).

***Dimensions of Learning*** A model that emphasises five types of student thinking essential to successful learning—thinking involved in: managing attitudes and perceptions related to learning, acquiring and integrating knowledge, extending and refining knowledge, using knowledge meaningfully, and developing powerful habits of mind. *Dimensions of Learning* provides guidelines for planning curriculum units and assessing students’ use of knowledge, as well as offering a repertoire of learning strategies that teachers can encourage their students to use (Marzano et al, 1997).

**International Baccalaureate Organization (IBO)** A non-profit educational organization that provides IB world schools with detailed curriculum guidelines, teacher training workshops, resources, and procedures for both external (at Diploma level) and school-based assessment of student work. Three programs are offered to a wide variety of schools throughout the world: the Diploma Program (DP), the Middle Years Program (MYP), and the Primary Years Program (PYP).

**Middle Years Program** A largely traditional curriculum to provide a framework of academic challenge and life skills for students aged 11–16 years in IB world schools.

**learning** ‘Process through which experience causes permanent change in knowledge or behaviour’ (Woolfolk, 2001, p. 596).

**practical theory of teaching** ‘A person’s private, integrated, but ever-changing system of knowledge, experience and values which is relevant to teaching practice at any particular time ... a personal construct [that] primarily [functions] as a basis or background against which action must be seen’ (Handal & Lauvas, 1987, p. 10).

**schemata** ‘Basic structures for organizing information; concepts’ (Woolfolk, 2001, p. 599).

**schemes** ‘Mental systems or categories of perception and experience’ (Woolfolk, 2001, p. 599).

# 1

## New Learning for a Changing World

Teachers promote student learning. That is their job. Some do it with spectacular success.

Bruner, for example, acclaims the skills of Miss Orcutt, who:

... expressed a sense of wonder that matched, indeed bettered, the sense of wonder I felt at that age (around ten) about everything I turned my mind to, including at the far reach such matters as light from extinguished stars still travelling toward us though their sources had been snuffed out. In effect, she was inviting me to extend *my* world of wonder to encompass *hers*. She was not just *informing* me. She was, rather, negotiating the world of wonder and possibility. (1986, p. 126)

Stenhouse made much the same point:

The improvement of schooling hinges on increasing the number of outstanding teachers ... for it is [they] who transmute the process of instruction into the adventure of education. Others, it is true, may teach us; but it is they who teach us to delight in learning and to exult in the extension of powers learning gives us. (1985, p. 104)

It is timely to revisit the work of these two influential commentators on learning and teaching. From our vantage point early in the twenty-first century, we may well ponder the impact on a knowledge-hungry, wisdom-starved world if, in their schooling, all students met—not one of these outstanding teachers—but many.

The reality is otherwise. Bruner must declare Miss Orcutt a:

... rarity ... a human event, not a transmission device. It is not that my other teachers did not mark their stances. It was rather that their stances were so off-puttingly and barrenly informative. (p. 126)

and Stenhouse observed:

The student who, during the course of ten years in school, meets two or three outstanding and congenial teachers has had a fortunate educational experience. Many are not so lucky. (p. 104)

Indeed, they are not! Many students experience the kind of teaching well described in Elmore's verdict on U.S. teaching—'emotionally flat and intellectually undemanding and unengaging' (1996, p. 5). The difficulty is, he says, that the few outstanding teachers are acknowledged and revered, not so much for their pedagogic knowledge and skill, as for the possession of innate ability, 'an individual trait much like hair color or shoe size, rather than ... a professional norm' (p. 5). He sees a dangerous error in the belief that teachers are born, not made.

Handal and Lauvas (1987) would agree. They contend that the strongest determinant of each teacher's approach to student learning is his or her 'practical theory' of teaching, by which they mean 'a person's private, integrated, but ever-changing system of knowledge, experience and values which is relevant to teaching practice at any particular time'. They describe a practical theory as a '... personal construct which is continuously established in the individual through a series of diverse events ... and primarily [functions] as a basis or background against which action must be seen' (1987, p. 10).

The exciting prospect, now, is that our growing understanding of human cognition has the potential to promote strikingly new approaches to teaching. Moreover, the educational



imperatives of a dramatically changing world, together with careful targeting of government funding are able to provide the stimuli and resources for necessary initiatives. Another reason for optimism is the increasing awareness of (what teachers should always have recognized and respected) the youthful capacity for wonder, comprehension and learning, so notably exemplified in the ten-year-old Bruner's response to Miss Orcutt.

While deep and lasting changes to learning are possible, they are contingent on equally profound revisions of the pedagogy prevailing in schools. In turn, such a paradigm shift in teachers' classroom practices will only occur if teachers, both individually and in collaboration with colleagues, are able to reconstruct their accustomed modes of behaviour in the classroom. Students, too, who help shape learning activities in those classrooms, will face a revision of their expectations. One obvious avenue for achieving pedagogic change is to direct ideas and resources to the pre-service training of teachers. With developments taking place so rapidly, however, it does not seem sufficient to rely solely on generational change. The same initiatives must also be carried into the practice of those already in the schools—teachers and students. So far, pedagogic change of this magnitude seems to have been elusive.

This study seeks deeper understanding of the process of changing practical theories by asking two questions:

- a. How do teachers and students respond to the challenge of changing their existing practical theories and collective codes of teaching and learning?
- b. What factors do they perceive to have facilitated or impeded the process of changing their existing practical theories and collective codes of teaching and learning?

Accordingly, information has been gathered—not only from trainee teachers, but also from those established in their profession, and their students—about their experiences with

pedagogic change. The hope has been that those directly involved in programs of pedagogic change can help us understand why pedagogic change has been so difficult to achieve.

In this chapter, the multiple demands on education are described and their implications for the pedagogy of teachers and students are considered. Part A summarizes some of the significant changes that occurred during recent decades, while Part B suggests the impact of those changes on the way schools operate. Part C discusses the practical implications for teachers and students of the changes that impinge on schools.

## **A. A CHANGING WORLD**

Australians born in 1900 came into the world before Federation. Many lived in small, sometimes isolated, usually self-reliant communities. Most worked hard, with little leisure and fewer luxuries. At best, they received five or six years of stern elementary schooling, and their sources of information—by modern standards, severely limited—restricted their political influence. Communication was ponderous, travel equally tedious, and products of industrial innovation were slow to filter into working class homes.

Now, early in the twenty-first century, it is taken for granted that most households possess quick and reliable transport, labour saving devices, mobile telephones, computers and access to the Internet. Such items as power tools, mechanical excavators, harvesters, and robots on air-conditioned production lines have diminished the demands for intense physical effort.

Furthermore, twentieth century developments such as universal suffrage, secondary education for all, greatly increased rates of home ownership, enforcement of industrial and social justice policies, and insurance and health schemes, have conferred on many Australians a potential for independence and power unknown to their grandparents. Vast, and increasing, stores of information are available to people who have had twelve or thirteen years of schooling, followed in many instances by at least one tertiary program.

Remarkable technological advances have wrought striking changes in all aspects of human society. Regrettably, these have not been achieved without significant economic and social consequences, particularly in patterns of employment, population distribution, labour force participation, work place skills, remuneration, and the global market place (Chapman, 1996).

We have been quick to take up the immediate applications of calculators, computers, and mobile phones, but remarkably tardy in adapting to, for example, the decline of obsolescent, ill-managed or non-competitive industries like coal, textiles and sugar production. We may applaud the ways that computer-driven advances in commerce and manufacturing have scaled down national boundaries and promoted a global economy, but we have not dealt well with the 'psychic wounds of the extraordinary social revolution that changed our attitudes toward sex, marriage, divorce, and child rearing' (Elkind, 1987, p. xii).

On the international scene, we have seen a trend (with some notable recent exceptions) for the world community to gather under the blue flag of the United Nations Organization, both to provide humanitarian aid wherever disaster has struck, and to intervene where basic human rights are persistently infringed. In this respect, the free flow of information, the rapidity of modern transport and the ease of consultation have been technological boons. But here, again, the picture is distorted by human problems; partisan views in the Security Council may stall essential moral imperatives, and admirable trends towards global harmony may be overturned by mutual suspicion and the pursuit of sectional advantages or old quarrels. An experienced observer of international affairs, Walter Cronkite (2000), has argued that world society is in greater danger than ever before. His considered view, even before the 9/11 catastrophe and the 'war on terror', was that nations must be ready to cede some of their local authority and power in order to ensure that international law prevailed.

Even the abundance of information now available is something of a mirage. We may have technologically advanced media and a "schooled" population but, as controversies in

Australia frequently remind us, there is often an impoverished understanding of our history, of important legal issues, and of political processes in the community. Examples might be found in recent, possibly uninformed criticism of the judicial processes of other countries, in the enthusiastic and unquestioning acceptance of fiction as the revelation of a hitherto concealed truth, or in the simplistic solutions proposed for shortages of water or the escalating road toll on long weekends or unpopular decisions in our own legal system. Perhaps Michael Costello is close to the truth when he chides both the print and electronic media for presenting a sensational, unidimensional view of the world to undiscerning audiences: '... often media consensus is very powerful and can take on a life of its own, creating the very political facts that the media assert already exist' (2005, p.13).

The sense of a culture adrift is well caught by Hargreaves (1997b) when he points to five Canadian paradoxes that might apply equally well to Australia:

- a. Parents demand a strong stand against violence in schools while allowing their own children to use violent video games;
- b. Schools encounter simultaneous decentralizing and centralizing of management decisions;
- c. Globalization seems to promote parochialism;
- d. Learning approaches that emphasize flexibility and individuality clash with national demands for uniformity and accountability;
- e. Apprehensive steps toward the future are cloaked in nostalgia.

According to Dalin (1998, p. 1062), because of dramatic political shifts in the world, we are experiencing major changes in 'our entire mental orientation' that are driving 'ten revolutions'—in knowledge, population, local responses to global trends, social relationships, economics, technology, ecology, aesthetics, politics and values—that are part of even broader forces at work in the world.

Australians can not evade these influences. We are urged to develop a collective mindset that welcomes innovation, understands the impact of change, perceives new global roles, and seeks active, informed and responsible involvement in democratic government. A process for educating the whole community is becoming urgent, and schools will have an important role to play. In fact, as Part B will discuss, new items have been added to the agenda for schooling.

## **B. THE IMPACT OF CHANGE ON SCHOOLS**

Changes in the nation and in the world have been reflected in at least five identifiable priorities for education. Those who work in schools now face a combination of demands, each of which will be discussed under the following headings:

1. Improved outcomes from existing academic programs;
2. Intensified efforts in the area of pastoral care;
3. Adaptation to the new technologies;
4. Revision and upgrading of educational goals;
5. Application of new understandings of human cognition.

### **1. IMPROVED OUTCOMES FROM EXISTING ACADEMIC PROGRAMS**

In secondary schools, two extremes may be encountered.

Some students—distracted by non-school priorities or disaffected by the seeming pointlessness of learning—disengage from the activities of school life and seek release either in indolent passivity or through deliberate disruption. Nothing defeats a conscientious teacher's best-laid plans or subverts classroom learning more efficiently. These students compel intense teacher effort simply to maintain routine activities. It is a problem that must be addressed, for the nation can not afford to neglect a significant sub-group of its younger citizens.

For other students, a high priority is the achievement at Year Twelve of satisfactory grades in subjects prerequisite for a preferred career. In an uncertain and competitive environment, parents—quite properly—express anxiety about the school progress of their children, and seek enhanced teacher assistance to maximize outcomes for them. In these circumstances, a strong academic press envelops Year Twelve students and shapes earlier years, too. That the best emerges in many students is evidenced in school newsletters listing the Merit Awards and Tertiary Entrance Rankings gained by students in local and international examinations.

Between these two extremes, there can be a significant academic concern. For example, the retention rate in South Australia's government secondary schools appears to have declined, with only 61.8% of full-time students completing Year Twelve in 2003 (*Advertiser*, 25 February 2004, p. 13). This has prompted a review of the South Australian Certificate of Education which, despite regular adjustments to syllabuses, has been described by Premier Rann as 'outdated ... too academic ... no longer appealing or appropriate to everyone' (*Advertiser*, 19 February 2004, p. 2). Rimm (1997) refers to the finding of the Carnegie Corporation's 1996 report, *Years of Promise*, which asserts that many US children—across all social groupings—are not working to their ability in school. She claims that her own work in psychiatry and pediatrics confirms an underachievement epidemic, which she attributes to a combination of home and school causes, particularly the "overempowerment" of children and their "adultization".

Then again, employers frequently complain that job applicants possess inadequate skills in language and mathematics, and that attitudes of mind appropriate for an honest, punctual, reliable and conscientious work force are not being encouraged in schools. Consequently, we find governments developing policies to remedy perceived shortcomings in student learning. Recent decades have given us a series of initiatives from the curriculum writing and evaluation movement of the 1970s, through school-based staff development, teacher

appraisal, Key Competencies, Statements and Profiles, the National Project on the Quality of Teaching and Learning, accountability procedures, and local management of schools, to Information Literacy, Vocational Education and the attainment standards of the South Australian Curriculum Standards and Accountability Framework (SACSA). A trend towards more conservative and authoritarian policies has been intensified recently by demands from the Minister of Education in Canberra. Dr Nelson has called for 'plain language report cards with achievements graded A, B, C, D or E' within eighteen months, and schools to make 'publicly available student and staff attendance, staff retention, teacher qualifications and the proportion of Years Three, Five, Seven or Nine students meeting national benchmarks in reading, writing and numeracy' (Maiden & West, 2005, p. 4).

Teachers, therefore, are being pressured to intensify their efforts, not only on behalf of examination candidates, but also to encourage disruptive students towards sound learning and acceptable behaviour, while endeavouring to work within national curriculum guidelines and to prepare students for national testing programs. As will be seen in Chapter 7, teachers interviewed for this investigation have readily testified that many hours of course writing and assessment documentation have been superimposed on an already busy schedule.

There are additional demands associated, for example, with the perception that students have no proper understanding of the processes of democratic government. It is also argued that the historical factors making Australia what it is today are not sufficiently appreciated by those who, in due course, will shape Australia's future. These views promote more course writing, and lead to the development of additional compulsory courses (Australian Studies in Stage One of the South Australian Certificate of Education is an example) that intensify the crowding of the curriculum and apply pressure to existing courses.

In essence, the effects of social and economic changes in the global community combine with other factors to drive school programs to a much more intense and complex level (Senate Employment, Workplace Relations, Small Business and Education Committee, 1998).

## 2. INTENSIFIED EFFORTS IN THE AREA OF PASTORAL CARE

Children born since 1980 have grown up in a context very different from their parents'. They are much more likely to come from a single parent household or to live in a blended family with children from another marriage. There is a strong likelihood that both caregivers (if they have two) will be engaged in full time work; alternatively, neither caregiver may be employed. Expectations for material possessions will be fanned by very effective advertising campaigns, while values will be promoted by television and video viewing, rather than by the religious adherence of their grandparents' era. These are the children for whom Elkind (1981, 1987, 1997) has expressed such deep concerns. He argues that events such as the Holocaust, the bombing of Hiroshima and [in USA] the Watergate affair challenged basic ideas and led to a much more cynical view of how the world works. Australia's immigration policies, its involvement in the invasion of Iraq, and recent budget decisions that some think further disadvantage low income earners may be having a similar impact in this country now.

Elkind also argues that idealized notions of romantic and maternal love and nuclear families have been pushed aside by the exigencies of survival in a stern and changing work environment. In his conversation with Scherer (1996, p. 7), he says that parents:

... have to protect themselves first, much as in an airplane they must put the breathing mask on themselves before they put it on their child. To make sure that their children are provided for, they devote tremendous time to working and refurbishing their skills. So, too often, parents are focused on their own activities, forcing kids to be autonomous as well—to be much more independent, to be home alone, to get their own meals, to organize their own time.



Emerging from Elkind's somewhat charitable description of the post-modern family is the notion of the not-so-innocent, but highly competent child. As Elkind says, however, such competence is not illustrated in any research data. On the contrary, teachers routinely report:

... much more aggressive behaviour ... many more learning problems ... much more depression ... [which are] the stress symptoms of kids who are expected to be more competent in handling all sorts of experiences than they really are. (Scherer, 1996, p. 7)

This is the new morbidity that Elkind believes has replaced the killer diseases of the early Twentieth Century—polio, tuberculosis—with the equally destructive, stress-related afflictions of substance abuse, vehicle accidents, and suicide.

Schools have always had responsibility for the physical, mental and moral health of students but now, in a 'socially toxic environment' (Garbarino, 1997, p. 12), the task is much more acute and there are fewer in the community to share the load with teachers. Furthermore, maintaining good order and academic focus in a much less compliant student population provides ongoing challenges for teachers, who are encouraged to adopt strategies recommended by experts in the field (Balson, 1982; Glasser, 1992; Johnson & Johnson, 1995; Kohn, 1996; Marzano R., Marzano J., & Pickering, 2003). Elements common to many of the behaviour management theories are the need for students to assume stronger control over their own actions and for their self-esteem to be nurtured. Such approaches require teachers to manage classes with a sensitivity and a commitment to negotiation that would startle earlier generations of teachers—and students!

A particular anxiety about the education of boys gains frequent attention. The underachievement of boys and the scarcity of male teachers as role models have been addressed in a number of forums and by organizations such as Boys' Schools: An International Coalition. Within a body of literature dating back to at least the 1980s, writers

like Biddulph depict the frustration of many boys' experience of schooling, and the consequences in the classroom:

More and more it is women who have to front up to physically intimidating and disrespectful boys. The classroom becomes a battle for survival with only two goals—getting the girls to achieve and getting the boys to behave. (Biddulph, 1998, p. 127)

The solutions are multi-faceted, of course, but a more practical, activity-based curriculum and a more intensive, caring approach to discipline are frequently recommended.

Clearly, changes in the wider community are not only impinging on the family but are also being translated into novel, specifically educational problems for the school as well. Teachers have to work harder and smarter just to maintain the *status quo* (Senate Employment, Workplace Relations, Small Business and Education Committee, 1998). Moreover, their role as homeroom teachers requires them to develop programs and hone skills as counsellors, as monitors of well-being, and as inspirers of academic focus.

### 3. ADAPTATION TO THE NEW TECHNOLOGIES

Teachers and students have always taken up improved *implements* as they came into general use. In little more than half a century, the Post Office nib—and its attendant culture of ink monitors, grubby fingers on copy books and hazardous writing lessons—disappeared from schools, to be replaced in turn by fountain pens, increasingly efficient ball-point pens, and the lap top word processor. Student life seemed to change with each technological gain. For teachers, too, the arrival of improved duplicating and display facilities eased some of the routine burdens. The introduction to schools of radio, slide and movie projectors, and later, television sets and VCRs brought a wealth of supplementary material into the curriculum. Most recently, DVDs and computing facilities, together with cheap and efficient printers and

scanners and sophisticated software, have prompted changes to many of the basic activities in classrooms.

While these technological developments may have made learning more efficient and more interesting for students, it has to be said that teachers who accept the Information Technology challenge must spend many hours acquiring skills that possibly still lag behind those of some students. There is the concern, too, that photocopiers, overhead projectors, and Power Point programs have unintended, but great, potential for emphasizing the transmission of information and increasing the prevalence of passive student learning.

There is, however, one aspect of the computer revolution that may be changing the very nature of schooling. Anybody with a moderately powerful computer, a reliable modem, and a reasonably inexpensive Internet service provider has immediate access to a world of information that far exceeds what any teacher, or indeed any traditional school library, could offer. Far from being limited to a particular lesson slot in a school's administrative arrangements, the World Wide Web is available 24 hours each day of the year, wherever there is a computer. Teachers are no longer the main dispensers of information, nor can they determine what information (or indeed what version of information) students will access. It is no overstatement to suggest that this aspect of technological change has striking implications for schooling. As Mehlinger put it:

The very relationship between students and teachers will be challenged because the technologies enable students to gain control of their own learning. In the past, schools have been places where people in authority decided what would be taught (and possibly learnt), at what age, and in what sequence. They also decided what would *not* be taught—what would not be approved knowledge. The new technologies provide students access to information that was once under the control of teachers. (1996, p. 402)

This is not to say that teachers are becoming obsolete. They were not replaced by radio programs, educational films or teaching machines, and there is no reason for suspecting that computers are any greater threat—provided teachers take pains to acquire competence with computers and do not restrict their activities to those things that computers can do better. Nor should too much credence be attached to the supposition that students know more about computers than their teachers. Some do. Many may know more than some of their teachers. Nevertheless, many students will need assistance with basic skills—touch typing, critical use of the spelling and grammar check, the competent application of all the potential of MS Word, Publisher and Power Point, for example. They must also understand that there is more to surfing the Internet than clicking on random sites. In this regard, Eisner (2004, pp. 8–9) offers sound advice when he says schools pursuing diverse and democratic richness in their curriculum should embrace goals that espouse judgement, critical thinking, meaningful literacy, collaboration and service. This is clearly an area of learning to be embedded across the curriculum—another challenge for teachers.

Then again, teachers' workloads are intensified and changed by the very existence of the World Wide Web. Because it is so easy for students to download and print material that has some relevance to the topic under examination, plagiarism is always possible. Countering that risk requires of teachers careful framing of assignments (often negotiated with students), close mentoring of the drafting stages, and sound understanding of their students. Computers do not make teaching easier; indeed, there are many areas where teachers have a unique, essential and time-expensive role.

#### 4. REVISION AND UPGRADING OF EDUCATIONAL GOALS

The new priorities prompted by societal and economic changes oblige teachers to reconceptualize their work.

Management experts have alerted the world to global changes in commerce and industry that demand new skills. Angell (2000), for example, draws a contrast between the Industrial Revolution, which he says altered only the *location* of physical labour, and the current spate of changes which promote an economy now largely based on *intellectual* labour. He acknowledges that problems arise because most of our experience has come from the age of machines, and agrees that the solution rests with education.

Handy, an influential voice in management theory, points to the experiences of places like Singapore which have recognized:

... that the traditional sources of welfare and comparative advantage—land, raw materials, money, and technology—can all be bought when and if needed, *provided* one has the people with the intelligence and the know-how to apply them. (1994, p. 19)

He asserts that ‘focused intelligence, the ability to acquire and apply knowledge and know-how, is the new source of wealth’ (pp. 18–19). He enjoins schools to find avenues for students to learn the skills of ‘conceptualizing, coordinating and consolidating’, a task which he suggests may not easily be achieved ‘by sitting in rows in a classroom’ (p. 207). He speaks of transforming ‘the whole of society into a permanent learning culture [in order to avoid] an increasingly divided society’ (p. 20) where power and wealth are available only to the well educated.

There is much support for this view.

The communiqué emerging from the National Innovation Summit in February 2000 argued that, in the new knowledge age emerging in Australia, intellectual capacity, creativity and entrepreneurship would drive growth. In his articles covering the Summit, Brook (2000, p. 10) identified the widely held view that education was crucial to the urgently needed improvement to Australia's innovation system. At government level, *Backing Australia's*

*Ability: An Innovation Action Plan for the Future* (Department of Industry, Science and Resources, 2001) acknowledged the importance for Australia's future prosperity of 'developing skills [and] generating new ideas through research' (p. 7). Interestingly, that document had much to say about funding arrangements, accountability measures and tax concessions, but was remarkably confident that, in the words of the Prime Minister's Foreword (p. 3) 'Australians [already] possess all the innate abilities to thrive in the coming century'. Fifteen years earlier, the report on secondary education and youth policy, *In the National Interest*, had made a more realistic assessment:

In economic terms, Australia will depend more and more on the capacity of all its citizens to think rationally, to apply what they know skilfully, and to adapt flexibly and imaginatively to new circumstances ... Secondary education should equip our young people with important, generally applicable skills. (Commonwealth Schools Commission, 1987, pp. 120–121)

Indeed, the symbiotic relationship between education and national prosperity has been widely recognized. At the National Education Assembly in 2001, The National Declaration for Education acknowledged that:

... education is now central to building a sound economic base for the nation and will ensure high levels of skill in such areas as information and communications technology (ICT), literacy and numeracy. (Australian College of Education, 2001, p. 4)

For Moss Canter (1995), those who succeed in the information society will be rich in three tangible assets: concepts (the best and latest ideas), and competence (the ability to operate at the highest possible standards), and connections (the relationships that provide access to resources both human and administrative around the world). Langrehr, a consistent advocate of student thinking (1993), accepts the view of 'political and business leaders around the world' that higher education should foster high level cognitive skills. He argues, however, that such skills have to be nourished from an earlier age: 'the very young ... must be good at

creative and critical thinking' (2001, p.14). His research challenges complacency, for he sees Australia lagging behind Asian neighbours in this regard, and is critical of Australia's concentration on nation-wide testing: 'Governments need to do more than test the spelling and maths ability of our youth with multiple choice tests' (2001, p. 14).

Beazley asserted that the most important policy area in creating a knowledge-based society is education, but saw a broader implication, too:

The challenge that lies before our nation is to grasp this: education is not just another policy branch any more. It is not just another line item in the budget. Education today is the foundation of our future national competitiveness. It is the foundation of fairness for all our people. (*Weekend Australian*, 8-9 May 1999, 'Special Supplement', p. 4)

A similar view has been expressed by Uren (2000) who asserted that Australia's future prosperity depends on greater investment both in an education system that promotes creativity and in a welfare system committed to cohesion and inclusiveness. The National Declaration for Education went much further to assert:

Education is crucial for nation building, promoting an informed awareness and critical understanding of our heritage, national identity, societal values and mutual interdependence ... [and] curricula will need to be reconceptualized to account for the diverse and expanding needs of students in the knowledge area. (Australian College of Education, 2001, p. 3)

These views place new demands on schools. Both Papadopoulos (1995) and Hason and Wagner (1996) see that a prime task for schools is to set up the potential for continuous future learning. A UNESCO report (1995) urges a dual approach to schooling to promote a global view through multicultural understanding, competence in languages, broad social skills and personal flexibility on one hand, and on the other to teach skills of abstraction and conceptualization. In the same year, an OECD report (1995) stressed the importance of

education for a knowledge-oriented society and urged educational authorities to adopt the stronger client-focused approach of service organizations—teachers becoming guides rather than drivers, and matching learning experiences to individual needs. Teese (cited in Gough 2000, p. 19) claims, 'All employers, including [those] in traditional craft areas, stress the importance of communication and interpersonal skills, planning, interpretation, negotiation and people skills'.

Some dissenting voices should be noted. Donnelly, for example, dismisses progressive views about teaching as 'the edubabble much loved by those committed to education fads' (2005a, p. 13). He urges a return to a more academic approach that is 'based on teachers teaching, students knowing right and wrong answers and mastering the basics' (p. 13). Then again, Sweet may dispute the orthodox view that technological change produces an inevitably rising demand for skills and qualifications (1987, p. 114). His research suggested, instead, that change can bring substantial deskilling, especially in the many middle level occupations. He noted, too, 'an apparent polarization in employment growth between opposed ends of the skills continuum' (p. 115). Nevertheless, he agrees with other commentators who share his insistence that education for the future work place must be broad and farsighted. Such an education requires curricula and systems that 'extend beyond technical competencies into organizational skills and technological insights', that 'develop social and negotiating skills', and that 'recognize the worker's right to criticize and contribute to the organization of production' (p. 115). In advocating a focus on higher order intellectual skills, Sweet is part of mainstream thought on education for the future. Many writers acknowledge that the rate of creating new knowledge is accelerating almost beyond the human capacity to adapt. If we are to cope with startling changes in our lives, human beings need mental skills and values systems that are sufficient to analyze novel situations, test hypotheses, assess alternative outcomes, and implement selected procedures. This, perhaps, is what the commentators intend



when they speak of a knowledge-based society and call for more abundant problem solving skills. They are, in fact, demanding highly trained minds.

It is a requirement that includes all members of society. Sweet may be right in his assessment that only an elite few really need the intensive training some are proposing. It is unlikely, however, that he would dispute the need for citizens' full participation in a democracy—this requires a populace characterized by a broad understanding of issues, a capacity to gather relevant information and analyze it critically, and a commitment to supporting just and rational decisions. Goodlad (2004, p. 20) rightly acknowledges that formal schooling must work in conjunction with informal education to achieve the 'central mission [of] educating the young in ... the civil and civic understandings and dispositions necessary to democratic citizenship', but asserts 'it would be the height of folly' if schools did not teach 'what we hold sacred' (p. 18). Giroux, too, leaves us in no doubt that schools are crucial to learning for citizenship:

Schools are an important indicator of the well being of a democratic society. They remind us of the civic values that must be passed to young people in order for them to think critically; to participate in policy decisions that affect their lives; and to transform the racial, social, and economic inequities that close down democratic social relations. (1998, p. 12)

He calls on educators, families, and members of the community to join forces to reinvigorate the language, social relations, and politics of schooling, and commends the innovative educators who are shaping the conditions under which future generations learn about their roles in a democratic society. He is a vigorous advocate of reform in schools.

## 5. APPLICATION OF NEW UNDERSTANDINGS OF HUMAN COGNITION.

Transmission teaching has been the norm in schools for a long time. Sotto (1994) describes why teacher explanation was essential in medieval England where paper was in short supply,

handwritten books were expensive, and a premium was attached to listening and imitating as strategies for learning. Little seems to have changed over the centuries. A photograph in Thiele's history of South Australian education shows fifty-five small children in a crowded 1909 drawing class faithfully replicating on their small blackboards the model provided by the teacher at the front of the room (1975, p. 87). One can imagine the careful instruction that had preceded the photograph and, indeed, visualize the syllabus that may have specified the subject of that lesson. Such detailed regimentation was expected. Administrative procedures were in place in South Australia (Hyams et al., 1988) and in the United States of America (Tyack, 1967) to ensure efficiency and uniformity. The outcomes were appropriately described by Tyack as a 'grim miseducation' that produced 'perfect automata'; specially valued were silence, obedience, attentiveness and accuracy. Since children were thought to have 'a vocabulary so poor' and thoughts 'so feeble that [they] are worthless', the task of schooling was to supply 'ready made thoughts' (pp. 314–316). One would like to think that all this has changed, but later (in Chapters Five and Seven) we shall note today's senior students describing their role in learning as listening to teachers and carrying out instructions!

It is possible to discern some value in transmission teaching, for we have a clearer understanding of the varying types of learning—procedural, declarative, conditional, conceptual, logical, analogical (Farnham-Diggory, 1992; McInerney & McInerney, 2002; Marzano et al., 1992, 1997; Woolfolk, 2001)—that human beings may undertake. We understand, also, that learning takes place at a number of cognitive levels. For example, Darling-Hammond, Wise, and Pease (1986, pp. 209-212), summarize the work of Mitchell and Kerchner who use comparisons to illuminate four distinct ways of describing learning—learning as it sustains *labour*, or *craft*, or *profession*, or *art*. Labour may be considered to require knowledge and skills sufficient to carry out supervised implementation of routine physical tasks. A craft, however, presumes the development of a range of skills that the

craftsperson applies routinely but appropriately with minimal supervision. A professional can be seen as possessing both a body of skills and knowledge, and the capacity to appraise individual instances, diagnose problems and take responsibility for selecting the preferable course of action. Learning for any activity that might be seen as art:

... encompasses elements of personal insight (as well as theoretically grounded insight) ... [and involves] ... a process that calls for intuition, creativity, improvisation and expressiveness—a process that leaves room for departures from what is implied by rules, formulas and algorithms. (Darling-Hammond et al., 1986, p. 211)

It might have been acceptable in 1909, with universal elementary schooling still in its early decades and 'Secondary Education for All' yet to be turned from slogan to reality, for schools to focus largely on transmission of labour-oriented learning. Done very well, it might have some application in 2005. Nevertheless, as the twenty-first century asserts the needs described in Sections 1 to 4 above, it is safer to assume that schooling must embrace the requirements of all four levels of learning activity, thereby allowing sound acquisition of basic skills and knowledge, while providing for growth into ever higher levels of cognition.

Of course, progressive educators from Dewey, Piaget and Bruner to those of more recent decades have been pointing the way towards radical shifts in the theory and practice of schools. Curriculum is no longer defined as reading, writing, arithmetic, grammar and geography (Tyack, 1967). Instead, it has been reconceptualized, not as:

... a solid, stable and immutable organization of existing and traditional knowledge ... but ... a set of dynamic processes involving—and welcoming—large scale and rapid epistemic change, planning, delivery and assessment. (Aspin, 1996, p. 130)

Most particularly, curriculum documents—no less bulky and detailed than their 1900 counterparts—focus on what and how *students will learn*.

The South Australian Curriculum Standards and Accountability (SACSA) Framework is very clear; it acknowledges that 'curriculum is constantly changing and evolving' and that 'recent research into how we learn has changed the way we look at teaching, learning and the curriculum' (SACSA Leaders' Pack, OHT 3, March 2003). Amongst its ten tenets for a South Australian curriculum theory there is emphasis on success for all learners and the learner's voice. The fifth of the major characteristics and intentions of the Framework commits the state's education system to a constructivist pedagogy which:

... rests on the notion that there is an innate human drive to make sense of the world. Instead of ... passively receiving objective knowledge that is "out there" learners actively construct knowledge by integrating new information and experiences into what they have previously have [sic] come to understand, revising and reinterpreting old knowledge in order to reconcile it with the new. (Stehn, 1999, p. 7)

The SACSA Framework repeats a message circulating through the Western World; knowledge is 'temporary, developmental, socially and culturally mediated, and thus, non-objective' (Fosnot, 1993, p. vii). Constructivist approaches to learning oblige teachers 'to provide a learning environment where students search for meaning, appreciate uncertainty, and inquire responsibly' (Jackson, 1993, p. v).

The new learning space envisaged by constructivists is the antithesis of the 1909 classroom—instead of passive obedience and receipt of knowledge, constructivism seeks the active engagement of lively minds. A fundamental shift in our understanding of knowledge, learning and human nature is bound up in the adoption of constructivism. Jackson (1993, p. v) says teachers must 'make important paradigm shifts' and Costa (1996, p. ix) characterizes the change as the emancipation of teachers, students and communities 'from the shackles of nearly a century of reductionism'. Even the *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain* (Bloom et al., 1956)—well known to generations of teachers and course

writers—is being challenged. Bereiter and Scardimalia assert that the ranking of knowledge at the lower end of the taxonomy and the use of the 'mental filing cabinets' image to describe memory, are obsolete. More recent studies show that 'principled pattern knowledge ... lies behind a great deal of what we commonly attribute to mental abilities and intuition' (1998, p. 679). Indeed, the case for a constructivist epistemology has been incisively presented by Lorschach and Tobin, who insist that the tools for 'knowers' are not 'bulging textbooks', but the senses:

It is only through seeing, hearing, touching, smelling, and tasting that an individual interacts with the environment. With these messages from the senses the individual builds a picture of the world. Therefore, constructivism asserts that knowledge resides in individuals; that knowledge cannot be transferred intact from the head of a teacher to the heads of students. The student tries to make sense of what is taught by trying to fit it with his/her experience. Consequently, words are not containers whose meanings are in the word itself, they are based on the constructions of individuals. (1992, p. 2)

Additional influences complicate the picture. Alexander and Murphy (1994) report the American Psychological Association's research confirming twelve principles for learner-centred education; they observe, however, the 'regrettable situation...[where]...too little of that research has made its way into the public and political mainstream and, likewise, into American classrooms' (p. 32). More encouragingly, investigations into how the human brain learns are being translated into strategies for learning and teaching (Caine & Caine, 1991; Jensen, 1998; Sprenger, 1999; Sylwester, 1995; Wolfe, 2001). The profound enhancement of human potential implied in the notion of multiple intelligences (Gardner, 1983, 1991, 1995) and the consequent implementation of relevant learning initiatives (Armstrong, 1994, 1998, 2003; Campbell & Campbell, 1999) add new concepts for educators to understand and apply. Overviews and meta-analyses of advances in cognitive psychology are producing a wealth of advice and insights into successful research-based strategies for enhancing learning

(Alexander & Murphy, 1994; Marzano, 2003; Marzano, Pickering & Pollock, 2001; Marzano, R. with Marzano, J. & Pickering, 2003; US Department of Education, 1986). Conceptual frameworks for dealing with all this new information are already in use in Australia (Atkin, 2000; Marzano et al., 1992, 1997) and many more are available—McChesney & Hertling (2000) summarize thirty-three reform programs currently operating in the USA. Templates for school improvement have a variety of priorities: results (Schmoker, 1996, 2001), standards (Carr & Harris, 2001), employment and information technology (Thornburg, 2002), engaging the broader community in discourse about continuous improvement (Keating, 1998).

In short, the twenty-first century is demanding that teachers be aware of, and apply appropriately, the new insights into human learning. Fortunately, it also provides some sign posts.

### **C. IMPLICATIONS FOR TEACHERS AND STUDENTS**

The range, complexity and difficulty of the tasks confronting schools should now be clear. Teachers must not only maintain or correct current practices but, more particularly, use new information to develop more appropriate conditions for sound learning. It is widely accepted that teachers, *ex officio*, are the people who have the greatest (perhaps the sole) opportunity and responsibility for ensuring that these worthy initiatives succeed (Blackburn, 1978; Darling-Hammond, 2000; Ingvarson, 2000; US Department of Education, 1986). This will not be a case of tinkering at the edges, for the initiatives, in combination, demand such changes in teachers' work that Fullan is convinced 'the teaching profession must be very different from the past' (1998a, p. 227) and Mehlinger asserts 'the genie is out of the bottle' (1996, p. 403).

In such a context it is cause for concern that the influential opinion of a former Director-General of Education and Training and Managing Director of TAFE in New South Wales has tended to minimize the degree of change that is necessary. In a paper on the enhancement of

the teaching profession, in which he ranged over issues such as teaching careers, professional teaching standards, and the need to reward excellence and penalize incompetence, Boston concluded (p. 13) that his 'propositions do not require us to develop new teaching and learning theories', nor are teachers required 'to work harder'. He cited the view of the National Commission on Teaching and America's Future that, 'Common sense suffices'.

A contradictory opinion is expressed by Darling Hammond (1998a, p. 8) who insists that teachers must acquire 'sophisticated knowledge' and develop 'a practice that is different from what [they] experienced as students'. Elsewhere, Darling-Hammond (1999) discusses 12 discrete areas of knowledge she deems essential for those who will teach in the twenty-first century. She asserts that the 'demands ... to teach a much wider range of students for much higher standards of performance are new ones for most teachers' (1999, p. 33). Her solution is the antithesis of Boston's:

Developing the kinds of knowledge I have described requires that most teachers move far beyond what they themselves experienced as students and, thus, that they learn in ways that are more powerful than simply reading and talking about new pedagogical ideas (Ball & Cohen). Learning to practise in substantially different ways than one has oneself experienced can occur neither through theoretical imaginings alone, nor on unguided experience alone. It requires a much tighter coupling of the two. This tighter coupling of theory and practice in the context of a broader and deeper base of knowledge about learning, development and teaching is perhaps the key feature of teacher education for the 21<sup>st</sup> century. (Darling-Hammond, 1999, p. 34)

Like Jackson (1993) writing in the USA, and Beare and Slaughter (1993) in Australia, Darling-Hammond is pointing to fundamental changes in values and purposes. We are being alerted to the paradigm shift—the 'change in mental cognition that helps us to understand the world in a different way than before' (Dalin, 1998, p. 1062)—that surrounds us.

The task facing teachers is made all the more daunting by the particular combination of challenges they face. At the same time as they are being urged to promote active learning and to foster the use of high-level thinking skills, they are also required to teach in ways that improve student achievement in basic literacy and numeracy skills, and to intensify the quality and extent of their pastoral care for students. In short, they must consolidate, renovate and innovate simultaneously.

Such a coalescing of seemingly incompatible tasks cries out for a pedagogy at once familiar and novel. Amalgams of educational philosophy, cognitive psychology, and curriculum theory that meet these specifications do exist. The crux of the matter is whether teachers and their students are able to bring refreshed practical theories and collective codes into the practices of their classrooms. This investigation seeks answers to the two questions posed on page three and restated here:

- a. How do teachers and students respond to the challenge of changing their existing practical theories and collective codes of teaching and learning?
- b. What factors do they perceive to have facilitated or impeded the process of changing their existing practical theories and collective codes of teaching and learning?

In the survey of literature in Chapter Two, the pessimistic judgements of expert commentators on educational change are noted. A connection is observed between the failure of many innovations and what is now known about human learning and behaviour. The influence of practical theories and collective codes on the teaching, learning and managing behaviours of teachers, students and school management teams is examined, and the desirability of aligning complementary theories and codes is advanced.



# 2

## **An Emerging Theory for Pedagogic Change**

It is ironic that, as politicians, businessmen and the general community turn to education to solve the crises of a rapidly changing world, experts in educational change are more cautious than ever about the capacity to effect major changes in education.

Previous decades have been awash with initiatives to improve schools. They have met partial success, particularly in those areas that might be regarded as worthwhile but peripheral—improving school buildings, increasing resource materials, diminishing class sizes, writing new curriculum documents, altering procedures for reporting and assessment, addressing the legal issues involved in schooling, and so on. The prime concern of schools, however, is students' learning. It is the failure both to achieve significant improvement in the outcomes of current learning and to shift to new emphases—despite great effort and expectations—that prompts the recent pessimism of experts in the field.

After noting in Part A the sceptical appraisals made by commentators about change initiatives in a number of countries, the chapter goes on in Part B to scan nine areas in which lessons from experiences of change have been reported in the literature. Part C concentrates on distilling from the literature a deeper understanding of what pedagogic change actually requires of human beings, and points to re-learning as the crucial factor. Part D reports what experts recommend for individual re-learning—characterized as the changing of a person's practical theories of learning and teaching—while Part E shifts focus to organizational re-learning in which the entire staff of a secondary school (working, perhaps, in smaller groups) refashion their collective code of teaching and learning. Part F acknowledges that students are

an important element in pedagogic change and considers what role in innovation commentators ascribe to them. Part G finds theoretical support for distinguishing secondary schooling from other sectors of education and, thereby, for limiting the scope of this investigation. The chapter concludes with Part H and its synthesis of earlier parts in order to propose seven statements that encapsulate advice from the literature and, thus, provide the theoretical framework for the investigation.

## **A. RESISTANCE TO CHANGE**

Looking back over five decades of attempts to change US education, Sarason has observed that the failure of educational change is 'predictable' (1990) and that 'the myriad of initiatives have produced no improvement in educational outcomes' (1996, p. 245). Fullan, also, is pessimistic:

The state of educational reform is a prime candidate for the lost cause category because none of the current strategies being employed results in substantial, wide spread change. The first step towards liberation, in my view, is the realization that we are facing a lost cause. (1997, p. 220)

Huberman has challenged the persisting assumption that 'well designed projects would find their way into school environments' and comments wryly, 'We know better now' (1992b, p. 2). Similarly, McCulloch notes that 'the hopes attached to curriculum reform as a means of radical educational change have been repeatedly disappointed' (1998, p. 1213). Miles observes that during the 1990s, despite rhetoric:

... infused with terms like "active learning", "discovery" ... "construction of knowledge" and "student empowerment" ... the reality of educational practice was predominantly "frontal teaching", dominated by teacher talk interspersed with student responses to fixed-answer questions. (1998, p. 63)

Even less optimistic are Stigler and Hiebert (1997) who review the implications for US teachers of the Third International Maths and Science Study. They point to marked contrasts between Japan and both Germany and the USA in the amount of seatwork time devoted, in each of those countries, to practising routine procedures, applying procedures in new situations, and inventing new procedures and analyzing new situations. They conclude that, for the USA, 'the biggest problem is not how we teach now, but that we have no way of getting better' (p. 20).

Even when oases of innovation are discovered, similar projects may surface hundreds of kilometres away while nearby schools appear impervious to the lead offered to them (Elmore, 1996). It seems, too, that discrimination of an unexpected kind is possible. While investigating access to a 'more student-centered understanding-based ... teaching that focuses on exploration and experimentation', Smerdon, Burkam and Lee concluded that 'students of average social and academic status appear to be the forgotten majority with respect to constructivist instruction' (1991, p. 5). Moreover, seemingly successful change projects 'do not persist for long' and those 'that do tend to stick in schools are those that are most distant from the core' (Elmore, 1996, p. 7). Elmore's judgement is that:

... a significant body of circumstantial evidence points to a deep, systemic incapacity of U.S. schools, and the practitioners who work in them, to develop, incorporate, and extend new ideas about teaching and learning in anything but a small fraction of schools and classrooms. (1996, p. 1)

More recently, Noguera has described US high schools as suffering from 'organizational flaws ... insufficient attention to quality control ... a disconnected variety of courses that lack depth and rigor ... a reliance on the lecture format ... [and] pervasive student alienation' (2004, p. 26).

In Australia, schools and the outcomes of schooling continue to change in certain ways. Students have gained a wider choice of subjects, and a greater range of topics, approaches, and texts within subjects. Despite the growth of national testing and subject-based competitions, examinations that now incorporate school-based assessment no longer dominate summative assessment as they did in earlier decades. To sustain the more diverse curriculum, schools tend to be larger and to operate in a less authoritarian management style. The pattern of the academic year has been altered by the introduction of four rather than three terms, and events during the year are more likely to include sports exchanges, field trips and theatre visits. Classroom tasks are leavened by practical activities in science laboratories, technology workshops and the gymnasium. The resources of school and municipal libraries are complemented by suites of computers and access to the World Wide Web.

It must be asked, however, whether these changes in structure, syllabuses and activities have altered the actual learning experiences of students. Have the changes been predominantly administrative or educational in nature, structural or pedagogic? Is it true that the changes summarized in the previous paragraph have left the central business of the classroom largely untouched?

Hill offers a highly indicative answer to these questions:

In my experience as a visiting teacher educator to perhaps a hundred primary classrooms over more than a decade, I have witnessed innumerable interactions between teachers and children in which the teacher appears not to have grasped the meaning or consequence of a child's intellectual offering. I am not speaking of the inevitable moments when distraction or preoccupation interferes with a teacher's ability to listen and respond adequately to a child, nor to situations when the child's meaning is unclear, but of interactions in which a child's expression of thinking is clear, unambiguous, and significant, yet falls into the void, uncomprehended, unacknowledged, and unused. (1999, p. 199)

If Hill's observations accurately distil the essence of contemporary primary schooling, we may well conclude that the belittling of student thought—recorded by Tyack (1967) as typical of US elementary schools in the early years of the Twentieth Century—remains entrenched in Australia today. The situation in secondary schools appears no better.

The Status and Quality of Teaching and Learning of Science in Australian Schools (Goodrum, Hackling, & Rennie, 2001) reports data gathered in a stratified, random sampling procedure from 505 teachers and 4023 Years Five to Eleven students in government and independent schools in all states and territories of the Commonwealth. As it addresses the 'Actual Picture' for students, the Executive Summary acknowledges 'great variability' across and within sectors and commends 'a high level of student satisfaction' in some primary schools where science is 'student-centred and activity-based' (p. viii). When it turns to the situation in secondary schools, the report becomes forthright and critical:

When students move to high school, many experience disappointment because the science they are taught is neither relevant nor engaging and does not connect with their interests and experiences. Traditional chalk-and-talk teaching, copying notes, and "cookbook" practical lessons offer little challenge or excitement to students. Disenchantment with science is reflected in the declining numbers of students who take science subjects in the post-compulsory years of schooling. (p. viii)

In a smaller Australian study with similar import, Palmer (1996) reported that less than half of 74 succeeding Year Ten biology students showed an adequate understanding of the important concept of adaptation. This may be another indication that meaningful learning and higher order thinking skills—much sought for twenty-first century living—are not always achieved in Australian secondary schools. Sarason's mantra 'The more things change the more they stay the same' (1971, p. 2) may still be relevant in Australia today. The Australian scene appears to merit Jackson's verdict on the US experience: 'We must abandon the mimetic

approach to learning and implement practices that encourage students to think and rethink, demonstrate, and exhibit' (1993, p. v).

The themes of disappointment and frustration recur in the literature of educational change. In commenting on precursors to the National Schools Project in Australia, Angus and Loudon repeat the familiar but regrettably accurate observation that teachers' 'cupboards are full of relics of last year's panacea' (1998, p. 831). Australia is not alone in finding change difficult to achieve. Leaders of the Improving the Quality of Education for All (IQEA) project in London and East Anglia were aware, as they undertook the early planning for the project that:

...many [previous] school improvement programmes had become little more than 'recipes' for specific, externally controlled developments. Further, too often, what was called school improvement seemed in reality to be an organizational or staff development programme with tenuous connections to classroom practice or student experience. (West, 1998, pp. 769–770)

A European perspective can be found in van den Berg's and Sleeper's verdict on traditional, centralized, large-scale educational reforms:

The central government appears to assign the implementation task to others. Others must see to the translation of the general starting points for implementation at the level of school and classroom practice, which may create a wide gap between the intentions of the policy designers and the perceptions of the implementers. (1996, p. 157)

Indeed Elmore refers to Cuban's review of almost one hundred years of innovation and progressivism in US education and cites his conclusion that a move to student-centred pedagogy 'seldom appeared in more than one fourth of the classrooms in any district that systematically tried to install these varied elements'. Moreover, in classrooms where there appeared to have been significant attempts to adopt new practices, 'the result was more often than not a hybrid of traditional and progressive in which the major elements of the traditional

core of instruction were largely undisturbed' (1996, p. 9). Similar evaluations either of system-wide progress towards change or of specific projects are to be found in the separate contributions of Calhoun and Joyce, Fink and Stoll, Giacquinta, Joyner, and McLaughlin to the *International Handbook of Educational Change* (Hargreaves et al., 1998).

It is clear that innovative policy documents, or changes in the structure of the school day, term or year, or revisions of curriculum statements or alterations to text book lists, of themselves, have not brought sweeping changes to student learning.

## **B. LESSONS FROM FAILURE**

Because profound changes to the core of school life have proven to be elusive and problematic, it is small wonder that multiple factors have been scrutinized for explanations of that failure. In this section, lessons gained from several decades of experience with change projects are reviewed, for they define aspects of pedagogic innovation that, alone or in combination, may either assure success for a project or, more frequently, condemn it to failure. They are grouped under the following headings:

1. Purpose of the change
2. Direction of approach
3. Stages of innovation
4. Leadership
5. Influence of the culture and structure of a school
6. Time constraints
7. Funding
8. The human dimension of change
9. Failure to understand the process

## 1. PURPOSE OF THE CHANGE

Almost without exception, educational change projects are aimed at enhancing the learning outcomes for students. The very name of the English initiative reported by Hopkins, Ainscow, and West (1994), *Improving the Quality of Education for All*, typifies the goals of major reforms. The exact nature of "quality" may have varied in definition from decade to decade. Holly, for example, noted three waves of reform—'doing the same but more of it', 'doing the same, but doing it better' and 'restructuring and redesign[ing] ... the educational system' (cited in Stoll & Fink, 1996, p. 21). The third wave has been the trend in recent years, especially in the promotion of the higher-level constructivist approach mentioned in Chapter One. It is closer to the reality of 2005, however, to see the waves now as simultaneous rather than sequential. Indeed, Chapter One has emphasized the multiplicity of demands on schools.

Interesting implications flow from the focus on students. Given that they are 'the work place "context" of greatest consequence' to teachers and their 'basic reference ... as they explained what they did in the classroom and evaluated their own effectiveness' (McLaughlin, 1998, p. 75), it seems highly probable that teachers will judge the merit of a proposed change to curriculum or pedagogy in terms of anticipated student gains. Measures to ensure, say, efficiency of administration or accountability of teachers are likely to be assessed differently by teachers from innovations that bring clear and direct benefits for the students they teach. In this regard, differences between teachers and policy makers are likely to arise. Further, it is probable that teachers' perceptions of the relevance of innovations for their students will be determined by the teachers' own beliefs and experience i.e. by the unique practical theory that each possesses. Each of the waves described by Holly has entailed a different set of educational priorities. When all three waves coincide, creating a shared vision or even gaining consensus may be problematic.



## 2. DIRECTION OF APPROACH

From quite early in the story of educational change, it has been understood that top-down schemes—where curriculum initiatives have been imposed on schools with minimal consultation—have limited chances of success. To explain this phenomenon, Kelly suggests:

It has proved impossible to get across to teachers the concept of the project, the theoretical considerations underpinning it, in such a way as to ensure that these were reflected in its practice. And so a gap emerges between the ideals and the realities, a gap that in some cases is so wide as to negate the project entirely. (1982, p. 133)

Similar observations have brought similar conclusions from Fullan that 'change is a journey not a blueprint' (1996a, p. 709), and from McLaughlin that 'it is exceedingly difficult for policy to change practice' (1998, p. 71). Nevertheless, as Hopkins, Ainscow, and West point out, the centre-periphery or top-down model 'is still the preferred approach of policy makers and politicians—a situation unlikely to change in the near future' (1994, p. 29).

Nor is the bottom-up approach, alone, seen to be any more effective. Certainly, action research has been advocated as a potent mechanism for change (Kemmis & McTaggart, 1988; McNiff, 1993), while Stenhouse has advocated 'extended professionalism' and the 'commitment to systematic questioning of one's own teaching (1975, p. 144), and Schon (1983; 1987) has urged reflective practice as a path to change. Nevertheless, potential for bottom-up change is restricted by the 'hurly-burly' of the classroom with its immediacy and press for action (Hargreaves, 1997, p. 121), by the 'conservatism, individualism, and presentism [that] are significant components in the ethos of ... teachers' (Lortie, 1975, p. 212), and by the 'privacy, territory and hierarchy' that typify school organization (Simons, 1984, p. 5). Further doubts about teachers' capacity to initiate and sustain change are raised by Huberman's study (1992a) of the career trajectories of 160 secondary teachers. After the few

early years of survival and discovery came phases of stabilization and consolidation, characterized by small-scale experimentation. Subsequent phases (covering the last twenty or so years of a career) were often marked by increasingly dogmatic resistance to innovations and, later, disengagement tinged either by bitterness or serenity. That is to say, within four or five years of their first appointment, many teachers may have settled into a pattern of teaching that persists without substantial modification for another thirty-five years. Huberman's work seems to exemplify the wider human attitudes to change described by Schon (1971) as dynamic conservatism.

Schon argues that, despite the acceleration and intensification of changes in the world, most human beings maintain a belief in the constancy of central aspects of their lives. This, he says, is essential for preserving a healthy sense of identity. When change is confronted, however, the crisis creates instability, and poses questions about that identity, with the degree of threat being commensurate with the extent of the change. To protect themselves from change, people select, or more probably move unconsciously into, any number of responses ranging from selective inattention, through minimal compliance to deliberate subversion of the change. Perhaps most frequently, human beings adopt a 'continuous and active program to maintain the system in which [they] are currently involved' (1971, p. 15). This is where dynamic conservatism is most readily seen—a human being expending energy to retain what are seen to be stable elements in one's life. The same appears to be true of groups and social systems.

The dilemma is often resolved by change agents through a judicious blending of top-down and bottom-up approaches (Stoll & Fink, 1996) which link external incentives, ideas and resources with school-based collegiality and 'situated practice' (McLaughlin, 1998, p. 76).

### 3. STAGES OF INNOVATION

Innovative education programs devised during the middle decades of the twentieth century were, largely, the products of conscientious, well-intentioned and clever people. As McLaughlin (1998) reports, the fact that their programs—largely top-down in approach—'fell short of expectations' or achieved 'enormous variability' in schools and classrooms came as a surprise to policy makers, who canvassed various explanations. It was thought, for example, that 'teachers did not always do as told', or were 'downright resistant' (McLaughlin, 1998, p. 70). McLaughlin, however, draws attention to important findings of the Rand Change Agent Study, which examined four programs designed to introduce and support innovative practices in schools:

Contrary to the 1:1 relationship assumed to exist between policy and practice, the ... study demonstrated that the nature, amount and pace of change at the local level was a product of local factors that were largely beyond the control of higher-level policy makers. To further complicate matters, these local factors changed over time and so created substantively and strategically different settings for policy. Specifically, Rand concluded that:

*Implementation dominates outcome...*

*Policy can't mandate what matters...*

*Local variability is the rule; uniformity is the exception...*

*Implementation signals mutual adaptation...* (McLaughlin, 1998, pp. 72–3)

The Rand Study emphasized the importance in educational change of both the local context and the need to institutionalize the innovation. A valuable understanding had been established, for while the change process may not be the linear and predictable 'blueprint' that some flow charts suggest, there are priorities that correspond to various staging points on the 'journey' (Fullan, 1996, p. 709), and implementation is one of them.

An early model emphasizing the notion of stages was described by Bayne-Jardine (1984) who proposed that the starting point for educational change had to be the perception of new student needs. He identified a number of tasks that are best dealt with at particular points in the project. His model begins with the careful formulation of the problem. Thereafter, proposals for a solution are produced, the proposals are thoroughly examined, and one is selected. A plan of action is then developed and steps are taken to implement it. Bayne-Jardine concluded the cycle in his school with an evaluation of outcomes. His model provides for school-based discussion, investigation and decision-making, and acknowledges, as the Rand Study suggests, that attention be directed specifically to the implementation phase.

A more recent model that informed the Halton Effective Schools Project (Stoll & Fink, 1996) and was in turn refined by it, specifies the foundations, context and stakeholders in the project before describing the four-stage cycle of action as: 'assessment → planning → implementation → evaluation' (p. 188). Models like this attend both to the development of a project and to its introduction and implementation. They also anticipate a repeat of the cycle after evaluation has been completed. What they do not specifically acknowledge is another task for innovators—ensuring that the change continues.

Another priority has been identified within the change process. When the excitement, professional pride and extra resources associated with the early stages of innovation begin to taper, a change program may falter. Key members of staff are likely to move away; new priorities will arise to claim scarce resources; creative energy can not be maintained indefinitely. Sustaining the progress achieved in earlier phases demands that three dimensions of reform—depth, length, breadth (Hargreaves & Fink, 2000)—be addressed. Issues of leadership, staff retention or induction, size of school, and school/community relationships are important, but Hargreaves and Fink assert that the longest-lasting impact will be achieved in

schools where deep learning is prized, reculturing is achieved, and school- and classroom-based change is supported by the wider context of schooling.

A somewhat gloomier but perhaps realistic view is found in Whitaker's treatment of the dynamics of change, where he cites Steve Fink's sequence of reactive stages: 'Shock, withdrawal, acknowledgement and adaptation' (Whitaker, 1993, pp. 64-5). After the initial sense of loss and confusion, described by Whitaker and elsewhere by Evans (1993) as akin to bereavement, comes a stage of withdrawal and resistance. As a realization of inevitability leads to the decision to move forward, the fourth stage of adjustment begins. There is a 'switch from attachment to the ways of the past to a belief that the future will be at least all right and at best beneficial and rewarding' (p. 65). In this way, Whitaker alerts change agents to typical human reactions to the loss of comfortably familiar routines, and reminds them to treat change as a process occurring over time, in recognizable stages, and amid varying emotions.

#### 4. LEADERSHIP

It is broadly assumed that the quality of leadership is an important element of successful innovation. As an example of what leadership should not do, Giacquinta's (1998) account of the Cambire project is highly instructive. Two schools in the greater Boston area were chosen for an in-depth, qualitative investigation of the implementation phase of school change. The Cambire team found that the principal of the "Field School" claimed to have introduced a major classroom innovation, 'humanistic education' (p. 166). The other, the "Fence School", had fostered innovation but only in a 'piecemeal' fashion in 'individual classrooms' (p. 167), until the Director of 'the experimental arm of the school system' (p. 178) announced, apparently with no prior consultation, that the 'Integrated Day' (p. 167) would be adopted.

After a year in the Field School, researchers could find no evidence of innovation arising from the concept of humanistic education, despite the Principal's assertion that it was succeeding. They were angrily denied further access to the school. The whole exercise had some of the attributes of window-dressing, and little relation to the learning of students.

In the Fence School, the integrated day was taken up enthusiastically. Thereafter the Director handed responsibility to the Principal—who, incidentally, had reservations about the merit of the project—and then took no further part. Within four months, the innovation had disappeared from all but one classroom; all others had reverted to the traditional model that had never really been superseded.

The Cambire team concluded that innovation at the Fence School failed, partly because of incompatibility with district requirements, partly because staff lacked the clarity of understanding, and the new skills and resources that were necessary, but mainly because of the Director's change strategy. The failure of leadership had left the innovators with 'fatigue and role overload from trying to be innovative and receiving little or [no] training and guidance in the process' (p. 169). To borrow Giacquinta's title, the teachers had been 'seduced and abandoned' (p. 163). Worse still, as the innovation languished, the pretence of its implementation was maintained on television, in the press, and for carefully orchestrated visits by 'educators from surrounding school systems ... [who] came to see "the innovation in action" '. There had clearly been 'no leader or champion at the school for this major classroom innovation' (p. 169).

There are other, happier, examples of school improvement initiatives, such as the Halton Effective Schools project in Ontario (Stoll & Fink, 1996) and the Improving the Quality of Education for All project in East Anglia (Hopkins, Ainscow, & West, 1994). These projects show how valuable it is when the leader of the school not only fosters a vision of what can be

achieved and the conditions that bring it about, but also shares the leadership role with senior colleagues. Shared leadership extends to others who have an important role to play in staff working groups or, as McLaughlin describes it, in 'the proximate context' (1998, p. 76). Miller (1998, p. 535) adds an important dimension by emphasizing not so much the personalities or styles of leadership in the four schools in her study, but the qualities of 'vision, courage, ethics and reality' that each principal exhibited. No less significant is the observation that each principal had been 'leading for seven to fourteen years' and had been 'in office when the first steps toward change were taken'. Furthermore, each principal worked closely with members of their staff who were educators with highly developed and effective teaching practices and with the ability to assume leadership among their colleagues.

Fullan's views on leadership are equally clear. He questions (1996, p. 704) customary notions, asserting that the passive facilitator 'fails to stand for anything' while the charismatic hero 'dominates the agenda', thereby intensifying any sense of powerlessness within his team. He sees a leader as a designer of institutional learning processes, a steward of the organization's broad purposes and a mentor to colleagues. He also emphasizes a leader's openness to participation, diversity, conflict, reflection, and mistakes. He offers eight principles for those who will lead schools through chaotic change processes:

1. You can't mandate what matters.
2. Change is a journey not a blueprint.
3. Problems are our friends.
4. Vision and strategic planning come later.
5. Individualism and collectivism must have equal power.
6. Neither centralization nor decentralization works. (Both top-down and bottom-up strategies are necessary).
7. Connection with the wider environment is critical for success.
8. Every person is a change agent. (Abridged from Fullan, 1996, p. 709)

It is clear that poor leadership, such as that identified in the Cambire project, almost certainly condemns innovation to failure. When, however, leaders share vision, resources, encouragement, and leadership itself, there is an enhanced prospect of success. More recently, Fullan has extended our understanding of 'executive leaders' at the forefront of transforming organizations:

Cultural Change Principals display palpable energy, enthusiasm and hope. In addition, five essential components characterize leaders in the knowledge society: moral purpose, an understanding of the change process, the ability to improve relationships, knowledge creation and sharing, and coherence making. (Fullan, 2002, p. 17)

Hargreaves and Fink (2004) would add to Fullan's list sustainable leadership—achieved through a focus on seven priorities: lasting improvements in learning, succession planning, social justice, material and human resources to sustain change, valuing of diversity, active forging of education alliances, and system-wide support for leaders.

Perhaps Senge articulated the prime quality for a leader of change. When asked by O'Neill in an interview for *Educational Leadership* what he would make his first step in turning a school into a learning organization, Senge replied:

In any system, you find most people basically trying to cover their asses and preserve the status quo. That's true in all organizations ... You have to start with the people who are ready to start, but your goal is always to create the most inclusive process possible, to involve people at all levels, including the kids, in envisioning where they really want the school to go. That's the cornerstone. (O'Neill, 1995, p. 22)



## 5. INFLUENCE OF THE CULTURE AND STRUCTURE OF A SCHOOL

It may be true that structures, alone, do not cause learning to occur (Peterson, McCarthey, & Elmore, 1996). It is known, however, that contextual factors form barriers to teachers' change. Both the culture and the structure of the school, and the prevailing assumptions about teachers' work set up expectations, preferred practices and boundaries, which in turn shape the norms, traditions and practices of a school.

Handy and Aitken, (1986, pp. 84–92) describe a valuable model for understanding the different cultures that might appear in a school. They nominate four: a *club* culture, a *role* culture, a *task* culture, and a *person* culture.

A *club* culture flourishes when the core of the organization is small and closely knit. Because communication between a dominant leader and an enthusiastic team tends to be frequent, informal and personal, the organization can respond quickly to new situations. Its capacity for change, however, depends heavily on the attitudes of both leader and staff.

A *role* culture, however, is underpinned by the principle that:

... organizations are sets of roles or job boxes, joined together in a logical and orderly fashion so that together they discharge the work of the organization. The organization is a piece of construction engineering with role piled on role, and responsibility linked to responsibility. Individuals are role occupants with job descriptions that effectively lay down the requirements of the role and its boundaries. (p. 87)

This is the classic hierarchical structure of bureaucracy, with its attendant virtues of stability, efficiency, procedural equity, economy of scale and predictability. In adversity, the *role* culture, because it may be found to be built too much on the organization and too little on the

individual's capacities', may be 'slow to perceive the need for change and slow to change even if the need is seen' (Handy, 1976, p. 191).

While the focal point in club cultures is the leader and, in role cultures, procedures, a *task* culture is organized around the completion of the project in hand. The major concern is to gather experts, equip them with appropriate resources and allow them to get on with the job. Those attracted to a task culture tend to be confident, competent, energetic and eager for a challenge. Consequently, a task culture is:

... usually a warm and friendly culture because it is built around co-operative groups of colleagues without much overt hierarchy. There are plans rather than procedures, reviews of progress rather than assessment of past performance. It is a forward-looking culture for a developing organization (Handy & Aitken, 1986, pp. 88–9).

Groups in a task culture are very flexible, and are adept at solving problems. They can be expensive, however, and may chafe at routines or repetitive tasks. Nevertheless, they thrive 'where speed of reaction, integration, sensitivity and creativity are more important than depth of specialization' (Handy, 1976, p. 194).

The fourth culture has, as its central point, the individual whose talent is all-important. A *person* culture is most frequently formed around professional people who refer to their organization as a practice, a faculty or a partnership. Management tasks are minimal, seen as a distraction from the chief task and, where possible, assigned to staff 'not only lower in status but [having] few if any formal means of control over the professionals'. It is a culture that works 'where the talent of the individual is what matters' (Handy & Aitken, 1986, p. 90), but achieving consensus or pursuing common goals may be difficult.

Handy and Aitken are careful to show that most schools are a mix of the four pure forms of these cultures, and that the mix changes from time to time. Nevertheless, a primary school,

probably with about 250 to 350 students and less than 30 staff, and with students organized into independent groups, each taught in the main by one teacher, almost invariably takes on a task, or occasionally a club culture. The demands of managing such a school would be quite different from those in a secondary school where enrolment rarely settles below 600 and often goes much higher, total staff numbers may exceed 100, and students frequently change learning groups and, therefore, teachers during the day. Secondary schools almost invariably possess an overall role culture, but teachers:

... with few exceptions, [see] themselves as task-culture *aficionados* ... Teaching ... is seen as a group activity by competent people dealing with a constantly changing challenge ...

Ideologically, the idea that education can be reduced to the systems and procedures of the role culture, the world of "management", is rejected. (Handy & Aitken, 1986, p. 93)

One might observe, here, that Australian teachers—especially those in high achieving secondary schools—are likely to see themselves as belonging to a person culture.

Nevertheless, Handy and Aitken emphasize the differences in culture, and therefore differences in the capacity for innovation, between primary and secondary schools. They point out, too, another characteristic of secondary schools that should be considered—the potential for conflict between the role culture of the school and the expectations of a task or person culture from individuals or small sub-groups such as subject departments:

The traditions of professionalism remain strong in teaching. Tenure, the privacy of the classroom, the right to express one's own views in one's own way and the sense of accountability to one's profession—these are all the hallmarks of a profession and of a person culture. They do not sit well with graded hierarchies, standardized curricula and the management ethos of large institutions, all of which call for a role culture. (p. 94)

A role culture facilitates efficiency, quality control and responsiveness to government and community demands. A person culture promotes 'the crucial interaction between individual

teacher and individual pupil' that lies at the heart of the ethos of individual development. Thus, role-induced conservatism may collide with the professionals' mistrust of managerialism. The task in a secondary school is to achieve some balance between potentially antagonistic priorities. Add to the mixture a new demand, for example, for a shift in pedagogy towards ever higher levels of professionalism, and secondary schools, as Handy & Aitken suggest, may well experience 'organizational schizophrenia' (1986, p. 94). They warn, too, that individuals who have become thoroughly settled in a role are at risk of operating within a set of demands and constraints that are not inherent in the role itself, but have grown through custom. In such a situation, the individual may unwittingly be 'squeezing out the area of choice' (p. 95) that is, in fact, available.

Handal and Lauvas (1987) make the same point. It is not uncommon, they say, for teachers to cite 'frame factors' (p. 15)—such things as curriculum documents, the timetable, assessment patterns, buildings, rules—as obstacles to change. Handal and Lauvas acknowledge the influence of these frame factors, but maintain that they are 'moulded through the way they are interpreted and understood by teachers' (p. 15). Thus, there may be considerably more free room for teachers than they believe, and many teachers:

... may not utilize this freedom to its full extent. Rather, many of them stay within frames and limits imposed on them by their own lack of imagination, knowledge of alternatives, and so on. (p. 16)

Sarason (1991) calls this kind of human behaviour professional parochialism—the inability to consider alternative courses of professional activity because of the over-riding influence of initial training and subsequent indoctrination into professional culture.

Other commentators on educational change have attached greater influence to the inhibiting effects of school and classroom contexts. Darling-Hammond sums up the conflict encountered by teachers when their attempts to apply innovative pedagogy:

... bump up against traditional schedules, discipline policies, grading and promotion procedures, and virtually everything else that defines the schooling enterprise ... If the whole school does not evolve to support the demands of more challenging instruction and more learner-centered practices, the changes are strangled. (1998b, p. 648)

Elmore, too, has identified 'the role of class- and school-level structures in enabling student learning [to] remain relatively static' (1996, p. 4), but argues for a 'fundamental change in the incentive structure' (p. 17) that influences how individuals within the school approach their roles.

It seems clear that any study of change projects in a secondary school must take some account of the perceived influence, for ill or good, of the prevailing organizational culture and structure.

## 6. TIME CONSTRAINTS

The time constraints in pedagogic change also come under scrutiny. At the individual level, Hargreaves (1997) draws attention to the busy, fragmented pattern of the teaching day that tends to preclude reflectiveness. Many others comment on the larger scene. Stoll and Fink (1996, p. 15) warn there can be no 'quick fix', and point to the need for five or more years to fully implement change. Hopkins, Ainscow, and West (1994) settle for two years, but that is their absolute minimum, whereas Miller (1998) reports that development had been underway in schools in her study for between seven and ten years. Angus and Loudon (1998) point out that the National Schools Project—'an action research project designed to identify how change in the work organization of schools could lead to improved student learning' (p.

836)—was originally granted three years to complete its task, actually had five years, but needed ten. Interestingly, it seems that employer representatives became impatient and cynical at the lack of quick results.

As will become apparent in subsequent chapters, lack of time is regularly cited as one of the greatest barriers to pedagogic change. This is by no means surprising. Adelman and Walking-Eagle (1997), for example, begin their chapter by citing an anonymous teacher's heartfelt cry that: 'Identifying and finding time ... to talk, to plan, to create, to be a life-long learner, and to teach gnaws at me constantly' (p. 92). They themselves confess to a significant underestimating of the time problem:

What we did not necessarily foresee at the outset of the study was the profound effect that intense reform agendas and structural changes based on time would have on teachers' lives in the workplace. (Adelman & Walking-Eagle, 1997, p. 107)

## 7. FUNDING

Money frequently features in discussions of educational change. It seems obvious that new resources and staff support mechanisms have costs attached to them; that, perhaps, is why the long standing disputes over funding arrangements for government and non-government schools in Australia have been re-ignited recently at a time of increasing concerns over quality and relevance of schooling. Certainly, Stoll and Fink (1996, p. 17) acknowledge that 'system support in the form of money is crucial to sustain reform initiatives in schools'. However, as they describe the Halton Effective Schools Project, which set out in 1986 to use school effectiveness principles to improve the quality of learning for 44,000 students in 83 of Ontario's elementary and secondary schools—change on a large scale, indeed—Stoll and Fink observe that large sums were not required. In fact, 'the most any Halton school received was \$1,500' (p. 17). This figure has to be adjusted for nearly two decades' inflation, but the point

may still be valid—large sums are not essential, and arguments to the contrary may merely 'provide an excuse for inaction' (Stoll & Fink, 1996, p. 17).

Much the same point was made by Buckingham about the Australian context. After noting that the supposedly under-funded government schools actually received, on average, a sum greater than the average for non-government schools, she concluded that the 'problem is not how much we spend but how we spend it' (2004, p. 16). On the same page, it was reported that, in a country accused of 'starving the public education system of funding ... public and private spending on schools increased as a proportion of gross domestic product...[and] Australia now ranks third out of 30 OECD countries' (Harrison, 2004, p. 16). It is possible that a party political case was being made in both articles but, if the figures are accurate, a reallocation of resources—and a resorting of priorities—may release sufficient funds to support innovation on a large scale.

Such a redesigning of the way resources are allocated may bring confrontation with established procedures and expectations, but Miles and Darling-Hammond assert that 'the biggest constraint may be lack of vision' (1998, p. 27). They point to five very different, but successful high schools that have rethought 'the ways school resources are used [while working] largely ... within existing salary structures ... [and without increasing] the use of technology in the classroom' (p. 27).

Pedagogic innovation, it seems, will be significantly enhanced by innovative thinking in the related fields of finance and management.

## 8. THE HUMAN DIMENSION OF CHANGE

It is difficult to foresee imminent changes to the pattern of secondary education whereby students between the ages of thirteen and eighteen carry out their learning in groups of up to

thirty, usually in rooms shut off from similar groups further along a corridor. Not for them the unstructured, self-directed exploration they knew in the kindergarten; rather, their learning is dominated by the need to cover the syllabus. Coordinating the learning in the classroom is a teacher, who has the power and indeed the obligation, to manage decision-making and activities in that classroom. At times, the learning may take place in a variety of other locations—in a well-equipped specialist area, or under a tree in the grounds, or off campus on an excursion—but the teacher will be in command. There will, of course, be similar classes operating elsewhere on the timetable and in the building, and the teacher will have colleagues and a team leader in the faculty, as well as a hierarchy of managers in the school and the system. Nevertheless, when students and teacher step into the learning space, the class is the unit of learning activity, and the teacher will determine what the learning task is to be and how it will be approached.

Thus, there is a certain inevitability about the assertion of human influence in programs of educational change. While 'drop-in' programs remain discredited, and existing school arrangements persist, it seems inescapable that the school will be the arena for change and the people at the end of the implementation chain—individual teachers and the class of students that happen to be with them at any given time—will be the prime agents of implementation (Miles, 1998; McLaughlin, 1998). Nevertheless, teachers value opportunities to discuss their work with colleagues and to be involved in collegial activities. This is no random grouping, however. As McLaughlin (1998, pp. 76-8) explains, while the state or system may have defined 'teachers' sense of professionalism and esteem', it was the school that 'created an overall frame for school-teaching, and established priorities for practice and general norms of collegiality and learning'. In the final analysis, however, it was the:

... proximate context, the professional setting closest to school-teaching, [that] had the greatest influence on how teachers understood their roles and the expectations they established



for teaching and learning. Whether reflexive conservatism or reinvention described schoolteaching depended in fundamental ways on the character of teachers' closest professional community. (p. 76)

It may sometimes be difficult to specify the exact composition of the proximate context. Is it the friends doing battle in animated hands of bridge at lunchtime? Or those who share responsibility for the pastoral care of a group of students? The subject department in which they work? These questions emphasize the Rand Study's distinction between the influence exerted by weak or strong sub-groups, social or professional sub-groups within a school. Even more importantly, the potential is underlined for a strong proximate context to be either a powerful ally for, or an influential opponent against change.

Thus, the subject department in a secondary school can be the crucial factor in pedagogic change. As the Rand Change Agent Study pointed out, the subject department can be a learning community that generates '*different kinds of knowledge*' and undertakes '*different types of action*', from what an individual in isolation might achieve:

Learning communities propelled members together to discover new knowledge and understandings through social means. Change that directly challenges institutional norms and roles requires rethinking existing routines, adding new things to an instructional repertoire, learning when and how to use new practices as well as established routines. Debate and argument among members of a professional community forge and sustain these new conceptions of practice. A teacher cannot argue alone! Community was essential to "unlearning" and reinventing "sacred stories" of traditional practice. (McLaughlin, 1998, p. 77)

The school may be the focal point, but the working units for change appear to be the individual teacher and his or her subject department(s).

At this point, it might be appropriate to affirm the relevance to successful pedagogic change of all the factors discussed in this section. Goals, choice of approach, typical trajectory of the process, quality of leadership in the project, impact of contextual factors, and the availability of adequate time and funding—each appears to demand attention. In Chapter Seven, teachers' views on these topics will be reported. It must be said, however, that one important outcome of the National Schools Project was to question the influence of frame factors and to emphasize the human dimensions of change:

Although the National Schools Project may have stimulated innovative thinking and practice in schools ... the Project appeared to have produced little, if any, restructuring of the regulatory frame work, leading ... [to the conclusion] that the habits of mind and historically embedded taken-for-granted practices of schooling are much more restricting than any demarcation or limits. (Ladwig et al., 1994, p. 35)

Campbell and Campbell (1999) would agree, but emphasize the potential of the human dimension. Their experience, as they studied six schools adopting multiple intelligences theory as a framework for teaching, was that 'meaningful restructuring first takes place within the minds of teachers and their beliefs about the nature and possibilities of their students. From these, all else follows' (p. 97).

## 9. FAILURE TO UNDERSTAND THE PROCESS

Perhaps the most confronting lesson of all has been embedded in Elmore's assertion that projects aiming to reform classroom practice seldom 'embody an explicit theory about how human beings learn to do things differently' (1996, p. 24). He claims:

One of the most robust findings of my 25 years of research in policy implementation is that policy-makers usually know shockingly little about the problems for which they purport to make policy. (Elmore, 2003, p. 6)

Sarason's advice, now more than three decades old, still has relevance and urgency. By 1971 he had already expressed concern that change was frequently deemed an entity which could be 'introduced' to a school, whereas he viewed it as a process. Too often an outsider promoted a change project without due regard for the dynamic and complex culture of the school, and without 'a theory of the change process' (1971, p. 2). Some change agents, he said, seem to 'assume that either by prayer, magic, sheer display of authority, or benevolence, the letter and the spirit of the changes will not be separated from each other' (1971, p. 8). He urged those who sought to change schools to formulate 'testable theories of how school works, the conditions wherein it changes and the processes whereby the changes occur' (1971, p. 9).

In Part B, nine factors associated with pedagogic change have been discussed. Each has the potential, on its own, to facilitate change, but if ill-used, also the potential to cause the innovation to fail. Nevertheless, it is likely, that a student-centred pedagogy—implemented with due attention to all phases of change and allowing both top-down and bottom-up approaches in an atmosphere of shared leadership—will be successful. There are some provisos, however. The human dimension should have priority. The project should be compatible with the culture and structures of the particular school, resources should be appropriate, and the problem of time poverty has to be overcome. Above all, the process itself should be clearly understood. It is this last point that is addressed in Part C.

### **C. TOWARDS UNDERSTANDING PEDAGOGIC CHANGE**

"Change" refers to some form of alteration or substitution, a process of becoming different.

Chin (cited in Tye & Novotney, 1975, p. 72) describes five levels of change that rise in complexity from simple *substitutions* (a new text book, perhaps), through *alterations* which provide a substitute that brings some difference (a four-term year), and *variations* best

characterized as brief experiments, to *restructuring* which requires basic reorganization (from norm-referenced to criterion-referenced assessment), and ultimately *value reorientation*—'a reorganization and reappraisal of basic beliefs as to what comprises the good'—as would be found in a school where traditional pedagogy is challenged by constructivist understandings of teachers' and students' roles. Amongst Chin's lower levels, we recognize areas where schools have achieved successful change. It is level five that depicts precisely the kind of change described in Chapter One—a change in the core of the teaching and learning process. As Elmore puts it, such a change means change in 'how teachers understand the nature of knowledge and the students' role in learning, and how these ideas about knowledge and learning are manifested in teaching and classwork' (1996, p. 2). This most profound level of change has also been identified by Fullan. He points to the multi-dimensional nature of innovation, and describes three possible 'components': 'new or revised *materials* ... new *teaching approaches* ... the alteration of *beliefs*' (1991, p. 37). Many innovations prompt changes in all three dimensions, but it is the last that touches most closely the 'occupational identity ... sense of competence ... and ... self-concept' (p. 40) of those who must revise their practices.

In this context, the claim that pedagogic change 'involves coming to understand and to be good at something new' (Fullan & Miles, 1992, p. 749) seems deceptively bland. In fact, it is a potent declaration that change—the acquisition of new knowledge and skills—must be equated to deep and complex learning. The reality of converting, for example, to a constructivist approach to learning and teaching is that an upheaval of established knowledge and beliefs—about knowledge itself, human nature and motivation, how learning occurs, how teachers should teach, how students should behave—may have to occur.

Joyce and Calhoun (1998) suggest that the origins of such an upheaval may lie in the centuries of socialization persuading human beings that learning occurs when experts pass

their knowledge to novices. A belief in the transmissibility of knowledge and the efficacy of recitation seems to be 'a broadly cultural phenomenon [that] is massively institutionalized in the conduct of schooling' (p. 1226).

Another factor consolidating the dominance of traditional patterns of teaching is the way human beings develop attitudes and beliefs. Text books for educational psychology (Farnham-Diggory, 1992; McInerney & McInerney, 2002; Woolfolk, 2001) explain that, from the earliest moments of life, human beings are organizing thoughts and actions into systems—schemata—thousands of them, that enable the world to be represented mentally in increasingly sophisticated ways.

Indeed, Sotro (1994) asserts that human beings always seek to match everything that is perceived against the huge number of schemata that have been developing since earliest infancy in the brain. If there is a match, the object, sound, or idea can be identified. If not, existing schemata must be reorganized or new ones created. Some particularly crucial aspects of human reliance on schemata emerge during Sotro's review (1994, p. 71) of a case in which a man, blind from birth, remarkably regained sight in middle age. The patient, although now sighted, found difficulty in dealing with aspects of the visible world he had not previously encountered through alternative senses. He learnt to read documents printed in the upper case he had experienced with Braille, but was unable to deal successfully with normal lower case text. Sotro argues that circumstances like these are strong indicators, first, that schemata laid down in childhood are especially potent, and secondly, that it is not easy to create schemata in later life. This view is personalized and clarified in an elegant and insightful description of his own acquisition of schemata by Nobel Prize-winner, Francois Jacob:

... I carry within a kind of inner statue, a statue sculpted since childhood, that gives my life a continuity and is the most intimate part of me, the hardest kernel of my character. I have been

shaping this statue all my life. I have been constantly retouching, polishing, refining it. (1988, pp. 18-19)

A somewhat similar understanding may have prompted Sotro when he insisted that the human brain is not a blank page but a living organ that processes input in terms of what it already knows, i.e. what it holds in its schemata. Far-reaching implications flow from this view. All human beings view situations they encounter through the prism of what they already know and believe. Teachers, for instance:

... teach in the way they do, not just because of the skills they have or have not learned. The ways they teach are grounded in their backgrounds, their biographies, in the kinds of teachers they have become. (Hargreaves, 1992, p. ix)

Classroom activities are said, variously, to be shaped by 'teacher mind frames' (Tobin, 1990, p. 34), 'values' (Bishop, Seah & Chin, 2003, p. 718), 'values and beliefs' (Tirosh & Graeber, 2003, p. 648), or 'teachers' conceptions of teaching and learning' (de Jong, Korthagen & Wubbels, 1998, p. 755). Sotro puts it even more bluntly: 'Teachers use whatever method we do ... because it was used on us' (1994, p. 9). It follows that teachers, administrators and students will interpret proposals for pedagogic change through their own schemata—what they know and believe and value. Sotro points to difficulties that might arise because of the controlling influence of well-established schemata:

- If a thing outside one's head is the same as the thing inside one's head, one will be able to make sense of it.
- If a thing outside one's head is completely different from the things inside one's head, one will usually not be able to make much sense of it.
- If a thing outside one's head is a little different from the things inside one's head, one will be unsure what one is perceiving—one might even see the things inside one's head. (1994, p. 73)

It seems likely that, when the things outside one's head are non-trivial—a theory of teaching as distinct from steps for completing a simple procedure—the scale of reaction is increased, and the capacity to over-ride existing schemata diminished. This is especially relevant to teachers whose conservatism, fuelled by their socialization, their own schooling experiences and their training, is likely to be intensified during the early years of teaching when inexperience makes the struggle for orderly classes the top priority and a barrier to innovation. In this context, a useful observation has been made by European researchers, who suggest that the 'ambivalent character of teachers' conceptions of teaching and learning' can be attributed to a 'contradiction between teachers' conscious ways of thinking about teaching and learning and a less conscious way of information processing'. They argue that:

Teachers are often unaware of the extent to which their experiences as a student direct their teaching behaviour ... [and] the assumption of a strong influence of unconscious and early experiences on actual conceptions also helps to explain why pre-service and in-service courses are not always successful in creating significant changes in teachers' conceptions. (de Jong, Korthagen & Wubbels, 1998, p. 755)

That is to say, a consideration of the operation of schemata (or mind frames, conceptions or beliefs and values) helps to place human responses to innovation in a more favourable light. Teachers, who in many cases have themselves enjoyed, and succeeded in, the classrooms of their own childhood, have almost certainly developed strong and persistent schemata for traditional approaches to teaching and learning. What has sometimes been seen as teacher resistance or obstruction, may really be a visible consequence of the struggle between long-held and deeply embedded theories and the uncertainty of new, only partly understood ideas. Fortunately, old schemata can be unlearnt as a precursor to the acquiring of new and different knowledge. Insights into how this might take place are offered through the concepts of assimilation, equilibration, and accommodation. Assimilation is generally understood

(Woolfolk, 2001) to occur when new information is fitted into existing schemata. On the other hand, accommodation takes place when:

... a person must change existing schemes to respond to a new situation. If data cannot be made to fit any existing schemes, then more appropriate structures must be developed. We adjust our thinking to fit the new information, instead of adjusting the information to fit our thinking. (Woolfolk, 2001, p. 29)

In all probability, learning will usually entail a mix of assimilation and accommodation.

Indeed, Strike and Posner, as they discuss the 'prime role' of accommodation in conceptual change, regard 'the distinction between accommodation and assimilation as a matter of degree' (1985, p. 216). As teachers address the paradigm shift required of them, some may deal with the challenge in ways that are predominantly assimilative. Others, perhaps a majority, will be involved in a process that is largely one of accommodation. In either case, the link between the two will be the process of equilibration—'the act of searching for a balance ... between our schemes for understanding the world and the data the world provides' (Woolfolk, 2001, pp. 29–30). Thus disequilibrium, a state of uncertainty, discomfort and stress during which balance is being sought, is an essential component of any major revision of values or attitudes.

The notion of pedagogic change being a process of profound learning offers an explanation of several change problems:

- a. Since the brain must actively process new information—and the more challenging the information, the more complex the processing—we can understand why teachers have to be intimately involved in the early stages of innovation if their schemata for teaching are to undergo accommodation. A similar conclusion will apply to students.
- b. All human beings have their own unique set of schemata. Each participant in pedagogic change, therefore, will have a distinctive path towards that change. It follows that the



pathways will be of varying levels of difficulty, with perhaps the strongest challenges confronting those with highly developed and deeply embedded schemata for learning and teaching—and some of a school's most successful and respected "instructors" may be in that group.

- c. Resistance to change may arise from any number of causes, but managers of change projects should consider, early in the process, the possibility that a difficulty could be due to a serious mismatch between a particular person's existing schemata and the new theory; what may seem recalcitrance, obstruction or inertia may, in fact, be the inevitable outcome of a human being's very human-ness.
- d. Planning for innovation should probably address all the structural and resource issues that are prominent in the literature, *but* the fundamental task is to provide opportunities for complex and difficult relearning.

Re-learning takes place at two levels—in the mind of an individual teacher or student as the existing practical theory undergoes assimilation or accommodation—and within the proximate group as the collective code is revised. Part D seeks deeper understanding of the process of individual learning.

#### **D. INDIVIDUAL LEARNING: CHANGING A PRACTICAL THEORY**

It is likely that a teacher, who is in touch with current educational thought, who is open to new ideas, and who is already committed to student-centred schooling, might find the idea of constructivist learning, for example, familiar and congenial. Already close to the concept, the teacher may need only to extend and refine existing ideas and values. A change of practical theory for that teacher might be a manageable exercise in assimilation. Another teacher—successful, confident, traditional—may find the same constructivist theory threatening,

because the schemata required in this situation will be the opposite of the professional knowledge, experience and values that previously have proven so effective. For this person, a change of practical theory presupposes accommodative learning of significant proportions. It should be said, too, that the need for accommodative learning is likely to be more prevalent than policy makers anticipate. Note, for instance, this observation by Hargreaves:

In what I have elsewhere called the pre-professional age of teaching, the technical aspects of the job were uncomplicated and unquestioned ... Teachers were (at best) enthusiastic people who knew their stuff, knew how to get it across and could keep order in their classes. You learned to teach by watching others do it, first as a pupil, then as a student teacher. After that, barring a few refinements gained through trial and error, you knew how to teach and you were on your own. Although teaching has changed dramatically in recent years, these pre-professional archetypes of teaching remain pervasive in our culture. (1997, p. 116)

How can the learning process that is at the heart of pedagogic change, provide both for the comparatively simple process of assimilation and for the challenge of accommodation at the other extreme? This question seems not to attract a lot of attention in the literature, but some profitable lines of approach are suggested.

Handal and Lauvas (1987) agree with many other writers that it is teachers who largely determine what happens in their own classrooms. They argue, therefore, that changing teachers is crucial to the success of pedagogic change programs. As was foreshadowed in the previous chapter (p. 2), they maintain that the strongest determinant of each teacher's practice is his or her 'practical theory' of teaching. Accordingly, any initiative to change the learning experiences of children must have as its first priority a means of changing the practical theories of the teachers who will implement the project.

However, Handal and Lauvas point out that a practical theory is a complex bundle of elements deriving from personal experiences as student, teacher, parent and community member, transmitted knowledge, and philosophical, political and ethical values.

A practical theory is, therefore, remarkably durable. Nevertheless, the bundles of knowledge, experiences and values can never be static but are being continually established because of the continuing fact of working and living. So, Handal and Lauvas argue that teachers can, and do, go on changing, largely through the process of assimilation which, as they say, is like adding new bricks to a 'structure already established' (1987, p. 58). More importantly, they maintain that large-scale changes—perhaps even the paradigm shifts mentioned in the literature—can be made. Maintaining their building image, they describe this kind of change activity as reconstruction:

At intervals ... we may suddenly be confronted with a situation where our established knowledge does not suffice to explain our observations. We experience bewilderment and have to search for a new structuring of our knowledge which can cater for the new experience—we utilize, in a word, accommodative learning. This means that we have to break up the framework previously established to reestablish what we know in a new way. (Handal & Lauvas, 1987, p. 8)

Efforts to bring about a major change in a practical theory must begin with 'each ... practical theory, seeking to foster its conscious articulation, and aiming to elaborate it and make it susceptible to change' (Handal & Lauvas, 1987, p. 9). Such a process of conceptual change is complex, time consuming, uncertain and, for the experienced teacher, threatening.

Given the human tendency when facing the pressures of change to find obstacles where they may not actually exist, it becomes necessary to help teachers to realize the knowledge and values that underpin their practice, to confront them with alternatives, and to facilitate their

resolution of conflicts and contradictions in their practice. Not surprisingly, Handal and Lauvas resolutely define their discourse with teachers as "counselling". They would insist, however, that the activity should promote 'the systematic integration of practical experience, transmitted knowledge and reflection on both' (p. 32) and be seen as a 'conceptual strategy' (p. 30) not the creation of a recipe.

The focus for the work of Handal and Lauvas has been the pre-service education of young teachers, but the relevance for more experienced teachers of the notion of cultivating personal and collective codes is also strong. The preferred strategy of Handal and Lauvas of documenting intentions prior to pre- and post-lesson discussions could readily be adapted to become an activity for collaborating focus groups within a school undertaking change.

The importance of confronting alternatives as the forerunner to change of practical theory is supported by Sotto, whose own experience had shown how aimless some attempts to change pedagogy could be:

Sometimes there would be a few things I wished I had said or done a little differently. But there was never anything solidly "there" which gave me any clues about how I could improve ... I had no analytical tools with which to examine my teaching. (Sotto, 1994, pp. 8–9)

His simple example of changing one's grip on a tennis racquet points out that two things must occur:

- (a) The incorrectness of previous [un-tutored] learning should become apparent; and
- (b) The learner should persist in a more appropriate way of behaving—in spite of the discomfort and failure which this may initially cause—until new schemata become established. (Sotto, 1994, p. 98)

He emphasizes the importance of four activities: discovering a mistake (a word, perhaps, to be avoided in the staff room), having an opportunity to learn more appropriate skills or information, being 'able to cope with the stress that acting in a new way may initially cause' (p. 99), and persevering. Reviewing lessons gained from the implementation of the Kentucky Education Reform Act 1990, Holland also concluded that change began with the individual and depended on 'an intensely personal decision to try something new [and] ... a broad belief that doing something differently [would] make it better' (1998, p. 26).

Interestingly, confronting the threat engendered by new ideas is central to Schon's (1971) explanation of how change occurs. He argues that dynamic conservatism can not be overcome without some anxiety. He, too, suggests an identifiable pattern to the process. A person in a state of stability encounters a crisis which threatens the regularities of existence. The person fights to retain stability, but if the change is sufficiently disruptive and generates sufficient energy to overcome the conservative efforts, the person passes through a threshold of change into a situation of instability. The process then becomes self-sustaining, moving the person into exponential change, until another level of stability is reached and dynamic conservatism is reasserted.

The idea common to both Schon's and Sotro's suggestions is that any sense of equilibrium is disrupted. It is also worth observing that perseverance in the face of thirty sceptical Year Ten students may be a luxury not fully appreciated by proponents of change, but the support of colleagues and the active involvement of students will probably ease the difficulty.

Huberman (1992a) found indications of a strong conservatism (or resilient practical theories, as Handal and Lauvas might describe it) amongst teachers. His research, however, offers some grounds for guarded optimism. About 40 per cent of teachers in three experience

groupings (11-19; 20-29; 30-39 years of teaching) reported a phase of renewal that had arisen from such diverse origins as promotion, structural reform and, significantly for those seeking a potent example of disequilibrium, the students' rebellion in Paris in 1968. Clearly, there are points in their career where teachers are open to change, and the motivating factors seem often to be associated with new responsibilities and/or intellectual challenges. A cautionary note for those who would undertake educational change comes as a rider to Huberman's research. In most cases, teachers who had experienced the vitality and expansiveness of renewal moved on to a phase of refocusing. Some teachers maintained a 'resolutely positive' approach, but now began to curtail their involvement. This meant:

... focusing on a preferred grade level/subject matter or type of pupil; disinvesting in school work and increasing outside interests; reducing contacts with peers other than those of one's most convivial group; avoiding additional administrative tasks or out-of-hours commitments; and not getting involved in future school-wide innovations. (Huberman, 1992a, p. 130)

And these were in the positive group! Others were characterized either by defensive focusing—they exhibited traits similar to those just described, but with a decidedly antagonistic tone—or by disenchantment, with its overtones of fatigue, lassitude and bitter opposition to administrators.

Fortunately, there was strong statistical evidence in the study for nominating two factors that promote an ultimate phase of satisfaction amongst older teachers and thus hold ajar the door to pedagogic change:

1. Consistent small-scale efforts to improve student learning and to attain higher levels of efficiency in classroom management. Teachers themselves referred to this as 'tinkering' with new materials, different pupil groupings or small changes in grading systems.

2. Periodic but fairly slight adjustments to work load and responsibilities, especially if sought by teachers themselves to counteract perceptions of approaching staleness.

A third factor that emerged was associated not so much with the closing years of a career but, more significantly, with levels of professional satisfaction throughout the career. Huberman says that sustained professional satisfaction emerged from:

... the experience of achieving significant results in the classroom ... a long, almost magical string of years in which apathetic pupils came alive, classrooms buzzed with purposeful activity, relationships with pupils were intense, and performance levels were well above average. In many instances this corresponded to a major instructional shift on the teacher's part—to a new set of didactic materials, to a more diagnostic approach to an interest-centred curriculum—which brought in its wake some exceptional results. (Huberman, 1992a, p. 131)

Moreover, nearly three quarters of Huberman's subjects preferred to approach one of these major instructional shifts through little experiments and a trial and error process (39%) or personal research (22%) or with a small group of colleagues (13%). Only 1% sought recourse to specialists in the field. It would appear, therefore, that the paradigm shift being sought for education is unlikely to be achieved in one revolutionary thrust. Huberman describes a teaching force that will commit—if at all—only to student-focused, classroom-based, experiential and incremental refinement of their work. Wider concerns both for the quality of students' learning and the national interest will insist that the process of changing pedagogy must be less haphazard, less private, but it must also be 'grafted on to the ways in which teachers spontaneously go about tinkering with their classrooms' (Huberman, 1992a, p. 137).

Huberman proposes a number of areas for consideration. He seeks, first, to have in schools more colleagues who are competent to offer quality advice when approached. This accords with the decision many years ago to appoint professional tutors to English secondary schools

(Stenhouse, 1975, p. 177) as envisaged in the James Report. Similar appointments have increasingly been made in Australia, especially in non-government schools which do not have the structural support afforded by membership of a school system. Roles for faculty leaders have also been expanded to include some of the functions of a professional tutor.

Second, he sees that it is essential to move resources and personnel out of central offices and much closer to, if not actually in, schools, where their task is not to offer courses, but to provide 'backing for temporary groups of teachers working in a problem space that is collectively meaningful and is usually of some urgency' (p. 138).

Third, he advocates a strategy for staff development that obliges teachers to experiment in their classroom with skills or strategies that are being discussed, and to share data with colleagues undertaking similar classroom studies. While this approach is consistent with teachers' own preference for tinkering in their classroom, Huberman asserts that:

... loosely structuring this process should raise it to a much higher power when one brings into it peers trying out similar approaches, opportunity for ongoing exchange, access to consultants or to fellow craftspeople slightly more skilled in this area than oneself and, probably, more intensity and care than one would spontaneously put into it if one were alone. (p. 138)

Such a program would maintain a tighter focus for group work and provide incentive for the solitary, the disengaged or the suspicious to become involved. Finally, he hopes to break down the territorialism of teachers and replace it with a more open, collaborative ethos, in the hope that there could be promoted a quite different professional life cycle in which routine is no longer a barrier to change.

The insights into teachers' work patterns and career cycles contributed by Huberman's research add insights and strategies to the principles proposed by Handal and Lauvas, Sotto,



and Schon. In combination, they provide useful ideas for those struggling to reconcile the realities of teachers' preferences with the challenge of pedagogic change.

Much of the work done in the area of conceptual change resonates with the concern of Handal and Lauvas to change practical theory. Those who have written about the learning of science in schools tend to explain change as the replacement of naïve theories by scientifically correct information (Champagne, Gunstone, & Klopfer, 1985; Strike & Posner, 1985; Vosniadou, 1994). It is thought to be a rational process, motivated by dissatisfaction with existing conceptions and supported both by sufficient understanding of the new conception and by perception that the new conception is plausible and useful (Strike & Posner, 1985, p. 216). The preferred methodology of change may therefore be the confrontation of the old by the new (Lyndon, 2000). An alternate view (Caravita & Hallden, 1994; Spada, 1994) recognizes the reality and the utility of retaining old ideas; change thus becomes the extension of conceptions held by the learner. It is generally agreed, however, that the process is neither easily nor swiftly achieved.

Moreover, even if individual change is proceeding satisfactorily, the next step in school-wide pedagogic change—bringing together the refurbished practical theories of individuals to form an organization's collective code of practice—demands attention. This topic is explored in Part E.

## **E. ORGANIZATIONAL LEARNING: CHANGING THE CODE**

Taking account of factors such as the diverse curriculum, teacher specialization, semester subjects, and regular staff changes, it is quite feasible to place the typical secondary student in the classes of almost fifty teachers—and, therefore in contact with almost fifty practical theories of teaching—over the course of the five years that are standard for South Australian

secondary schooling. Such differences in pedagogy and personality have the potential for producing a kaleidoscopic blur rather than a coherent approach to learning. In fact, Handal and Lauvas point to serious difficulties that may confront students as a result of the methodological freedom traditionally accorded teachers:

From the pupil's point of view ... such discrepancies in practical theories among their teachers may be quite an exhausting element in their school experience. They are the ones who constantly have to adjust to differences in practice due to differences in the theories which prescribe that practice. (Handal & Lauvas, 1987, p. 14)

For the sake of students, then, it is important for teachers—who share with colleagues similar students, syllabuses, work conditions, training, and values—to maximize their shared knowledge, beliefs and practices while minimizing contradictions and incidentally surrendering some of their professional autonomy. In this way, 'through long and continuous dialogue [and] ... collective reflection ... upon ... collective insight into practice' (Handal & Lauvas, 1987, pp. 14–15), a shared practical theory for teaching begins to emerge. Handal and Lauvas refer to this as the teachers' collective code. If, in the traditional setting, it is in the interests of students for their teachers to develop a collective code, no matter how rudimentary, it seems much more urgent in school-wide pedagogic change that every effort be made to achieve, not uniformity, but consistency in the new approach to learning. In fact, where the change is profound, the revision of beliefs and values about learning and teaching has to embrace as great a number of teachers and students as possible, and become as secure as possible in the shortest possible time. If that does not occur, the absence of committed collegial support and the resurgence of earlier schemata may subvert the initiative.

Thus, staff development, perhaps better understood as helping teachers learn to do familiar things differently, becomes integral to the project (Dalin, 1998; Fullan, 1986, 1997, 1998; Hargreaves, 1997; Hargreaves & Moore, 1999; Hopkins, 1998; Miller, 1998). The term that

best captures the essence of this approach is reculturing, for an extensive revision of the school's ethos is, indeed, underway.

This is no easy task. Darling-Hammond points out that:

Acquiring ... sophisticated knowledge and developing a practice that is different from what teachers themselves experienced as students requires learning opportunities for teachers that are more powerful than simply reading and talking about new pedagogical ideas. (1998b, p. 8)

She follows with a list of successful strategies that are:

- experiential, engaging teachers in concrete tasks of teaching, assessment, and observation that illuminate the processes of learning and development;
- grounded in participants' questions, inquiry, and experimentation as well as profession-wide research;
- collaborative, involving a sharing of knowledge among educators;
- connected to and derived from teachers' work with their students as well as to examinations of subject matter and teaching methods;
- sustained and intensive, supported by modeling, coaching, and problem solving around specific problems of practice;
- connected to other aspects of school change. (Darling-Hammond, 1998b, p. 11)

Hargreaves' recommendations are very similar. He says that a program of shared professional learning succeeds when:

- ▶ teachers pursue it collaboratively, rather than individually;
- ▶ it addresses questions that are compelling for teachers, not concerns imposed by others;
- ▶ it is connected (but not necessarily restricted to) the ongoing priorities of the school;
- ▶ commitment to it is long-term and sustained, not short-term and episodic. (1997, p. 117)

Zmuda, Kuklis, & Kline are amongst the more recent authors to reiterate the centrality of professional development programs. Their prescriptions—more management-oriented than Darling-Hammond's or Hargreaves'—proceed through six steps that begin with the identification of core beliefs, proceed in turn to defining how core beliefs translate into practice, analyzing data to determine disparities between vision and reality, identifying changes that will close gaps, and developing an action plan for supporting all aspects of the innovation before embracing collective autonomy and collective accountability (2004, p. 6).

A program that aims at teaching teachers a new "correct" pedagogy, even in the mildest of confrontational ways, is likely to struggle on account of the durability of long-held ideas and the human trait of resisting change. On the other hand, an action-based exploration of new student requirements can be the vehicle for successful change. Significantly, those who write about conceptual change seem to share with Handal and Lauvas, and Huberman, a belief that the process of accommodation is the key to successful change of pedagogy. For example, Keiny (1994) reports considerable success in transforming teachers' conceptions about their work and the roles of their students. Initially staff at the comprehensive school at Yerucham in Israel expressed strong belief in the instrumental role of teachers and the passivity of students. As they took on the role of a community school, it became clear that such a project:

... required a new way of thinking about school, with respect to subject matter, teaching strategies and the learning process...[as well as] a change in the conventional conception of school–community relationship. (Keiny, 1994, p. 234)

Equipped with a broad understanding of what a community school should seek to achieve, staff established curricular links with industries in the town, and students began their off-campus learning activities. As the process unfolded, teachers found professional development opportunities in three different contexts:

- a. They were able to learn 'through a direct encounter ... with the industries or institutions as working places'.
- b. They learnt 'from their students' experiences'.
- c. There was 'peer learning in the teams through a dialectical process of reflection'. (1994, p. 234)

Reflective comments at the end of the second year of the project showed an almost total reversal of pedagogy. Teachers had gained confidence in their students' capacity to learn by direct encounter, and to display resourcefulness and responsibility. Keiny makes the point that:

... conceptual change is a process that occurs in two interdependent contexts; a social-theoretical locus which is a reflective group where teachers can voice their different ideas of teaching and through a dialectical process of reflection, reconstruct their pedagogical knowledge, and a practical context, or the teacher's actual practice, where he or she can experiment their new ideas and reflect on (or in) their experience. (1994, p. 232)

A similar report from Florida (Jakubowski & Tobin, 1997) shows how mathematics and science teachers from four elementary schools were involved in a program that began with a 20-day summer school of workshops and course planning, followed by the actual trialling in schools and reflective meetings over a span of eighteen months. The study confirmed that 'personal epistemologies influenced teachers' conceptualizations of their roles and associated beliefs' (p. 208). During the project, teachers came to accept a more facilitating rather than didactic role, and students took on more autonomy and were more active and dynamic in their learning. The keys to these changes were:

- a. teachers were committed to changing an aspect of the classroom environment;
- b. they constructed a vision of what mathematics and science could be like;
- c. they reflected on their cognition and practices. (p. 213)

Also significant was the provision to each school of a full time substitute to support school based planning, observation, research, and consultation within the mathematics and science departments.

It is clear that Fullan's classic identification of ten assumptions basic to successful educational change continues to have striking relevance for those enmeshed in change. In significantly abbreviated form, the assumptions are:

1. Do not assume that your version of what change should be is the one that should or could be implemented.
2. Assume that any significant innovation, if it is to result in change, requires individual implementers to work out their own meaning.
3. Assume that conflict and disagreement are not only inevitable but fundamental to successful change.
4. Assume that people need pressure to change (even in directions that they desire), but it will be effective only under conditions that allow them to react, to form their own position, to interact with other implementers, to obtain technical assistance, etc. Unless people are to be replaced with others who have different desired characteristics, relearning is at the heart of the change.
5. Assume that effective change takes time.
6. Do not assume that the reason for lack of implementation is outright rejection of the values embodied in the change, or hard-core resistance to all change.
7. Do not expect all or even most people or groups to change.
8. Assume that you will need ... evolutionary planning and problem solving models based on knowledge of the change process.
9. Assume that no amount of knowledge will ever make it totally clear what action should be taken.
10. Assume that changing the culture of institutions is the real agenda. (1991, pp. 105-7)

Furthermore, Fullan nominates two factors common to successful school reculturing:

- authentic pedagogy (teaching that requires students to think, to develop an in-depth understanding, and to apply academic learning to important realistic problems), and student learning.
- the centrality of individual motivation and social relationships. (Fullan, 1997, p. 227)

In his interview with Dennis Sparks (2003), Fullan suggested that two separate characteristics—the extent to which teachers are knowledge rich, and the extent to which teachers are able to initiate change—combine to shape innovation. He argues that early attempts at educational change, which were driven by uninformed professional judgement, gave way in turn to uninformed government prescription and then informed prescription. Now, he argues, it is necessary to establish cultural change through informed professional judgement. He makes the case for returning the responsibility for achieving pedagogic change to those within the schools.

It follows that, if pedagogic change is dependent on the capacity of individual teachers to revise their practical theory of teaching and for proximate groups to revise their collective code, it is essential that a program of professional learning should provide learning opportunities for individuals, subject department groups and the whole staff. In other words, the school must become an authentic learning organization, which, in Fullan's terms, might mean teaching that requires teachers to think, to develop an in-depth understanding, and to apply their pedagogic learning to important, realistic problems in their own classrooms.

Authentic pedagogy should reach the other occupants of classrooms, too. Part F discusses the role that students might play in a change of pedagogy.

## F. THE ROLE OF STUDENTS IN PEDAGOGIC CHANGE

To this point, attention has been fixed on how teachers might revise their own practical theory and the collective code they share with colleagues. It is important to acknowledge, now, that in each secondary classroom there will be up to thirty or more students, each of whom possesses a practical theory of learning and teaching that (in South Australia) has been honed by a minimum of seven years schooling. It is possible that, having been conditioned throughout their school years to accept the passive role required for the transmission of facts, they might become an 'unwitting barrier' to change (Hopkins, Ainscow, & West, 1994, p. 195). Rudduck, too, is aware of this potential:

Where innovations fail to take root in schools and classrooms, it may be because students are the guardians of the existing culture, and as such represent a powerful conservative force ... Unless we give attention to the problems that students face, we may be overlooking a significant feature of the innovation process. (cited in Rudduck, Day, & Wallace, 1997, pp. 74–75)

A more positive view is that students can be powerful allies during a program of change. If consulted, they are capable from an early age, of providing feedback that is surprising to some teachers in its candour and insight. Dalin (1998) believes that students' intuitive understanding—especially in the secondary years—makes them a valuable human resource that should be involved in discussions on a regular basis. Some schools achieve this, but appear to be a small minority. Nor does the literature on educational change abound with descriptions of student participation. Perhaps the mindset continues that students have little to contribute to the process of pedagogic change. Such an interpretation might explain why Stoll and Fink (1996, p. 25) allude to student input to reform at Frontenac Public School but omit them from the list of community groups consulted.



Australian conditions may be no different. The *Course Experience of Year Twelve Students* survey (Long & Robinson, 1995) provides a salutary overview of opinions obtained from our most senior secondary students. Approximately 2,100 students responded to a questionnaire that sought judgements about the quality of teaching, the clarity of goals and standards, assessment, and workload. After combining the 'always true' and 'frequently true' responses (and discounting 'half-time', 'sometimes', and 'rarely' responses), 65% of respondents said that they had a clear idea of expectations and standards, 53% agreed that teachers made it clear from the start what they expected of students, but a mere 24% said they often discussed with teachers how they were going to learn in the course. A slightly higher percentage (33%) believed they were able to work through what they had to learn in the way that most suited them. These results appear to confirm the persistence of teachers' codes that promote passive learning for many students, even at Year Twelve level.

The essence of the pedagogic change proposed for schools early in the twenty-first century is that students should be actively constructing their own knowledge. Students, in fact, seem able to make that kind of transformation with ease. They can also be very clear about what they want in their school experience. They define the qualities they desire in teachers with precision and offer such highly perceptive suggestions for school improvement as:

- a. Giving each year of secondary school a distinct identity ...
- b. Creating time for dialogue about learning ...
- c. Helping students explore standards for judging quality work in different subjects ...
- d. Making time for teachers to talk individually with students about their work ...
- e. Responding to the problem of "catching up" for students who have missed work.

(Rudduck, Day, & Wallace, 1997, pp. 85–6)

Underpinning and linking all the findings that Rudduck, Day, and Wallace (1997) report is students' insistence on six fundamental qualities: respect, fairness, autonomy, intellectual challenge, social support and security.

Like Elkind (1997), Rudduck, Day, and Wallace point to the increasing maturity and sophistication of adolescents—attributes that many schools seem not to have acknowledged:

Out of school, many young people find themselves involved in complex relationships and situations within the family or peer group. Many carry tough responsibilities, balancing multiple roles and often finding themselves dealing with conflicting loyalties. (Rudduck, Day, & Wallace, 1997, p. 89)

But schools, they claim, seem to be holding their pupils in the 'quarantine of childhood' (p. 89). It is not standard procedure to consult students about important educational changes. Students seldom take active parts in the introduction of new projects; their perspectives on changes that will be central to their school life are sought infrequently.

Perhaps teachers are reluctant to confer power on students for fear of losing authority in the continuing matter of discipline. Perhaps the explanation lies in the inertia of centuries of habit. Perhaps students' voices are neglected because the collective code of educators depicts students as having nothing to contribute to discussions about the big educational issues. This last suggestion may lie at the core of the paradigm shift that has reverberated through the pages of this and the preceding chapter. At the Colin Thiele Lecture in 1999, Comber referred to the 'enormous amounts of stillness' (my notes of the lecture) in Australian classrooms. She challenged her audience to tune in to the voices of students, to use learners as 'informants of our practice' and to ensure that educational research is used to 'disrupt and challenge the cliches that determine our practice'.

## **G. ORIENTATION TOWARDS SECONDARY EDUCATION**

While those who work in early childhood settings, primary schools or tertiary institutions may find much in common with those who deal with students in Years Eight to Twelve, this investigation concentrates on secondary education. There are several reasons for this approach.

First, personal interests and experience, in combination with the perception that secondary schools are comparatively under-examined, have prompted the limitation of the investigation to a feasible and useful field.

Second, the secondary school population is distinctive in a number of ways. Students in the thirteen to eighteen age band move beyond compulsory attendance during Year Ten, but are obliged to complete Years Eleven and Twelve to gain certification of satisfactory completion of secondary education. The South Australian Certificate of Education (SACE) is a typical example of how externally prescribed patterns hold many adolescents at school in order to acquire a qualification for employment. This occurs at a time when school rules, the obligation to wear a school uniform, structures that require regular and punctual attendance, and expectations of three hours homework each night begin to chafe. An interesting blend of accountability, responsibility and behaviour management marks off secondary education from earlier and later stages, thereby conferring on secondary teachers a distinctively challenging work context. The fact that parental concerns for their children's achievement levels also appear to reach a peak during the secondary years intensifies the expectations placed on teachers. In such a climate, there is a press towards conservatism and caution rather than risky experimentation in the classroom. Change, therefore, is likely to be more difficult to achieve than in a primary school.

Another distinctive feature of secondary schools arises from their very nature. Because they tend to be large organizations and are staffed by specialists, they employ a large number of teachers with a diverse range of qualifications and interests. As a consequence, secondary schools have a characteristic culture and management structure which, as has been noted earlier, is described by Handy and Aitken (1986) as lying somewhere between a ponderously conservative hierarchy and a loose affiliation of highly individualistic professionals. One implication of this view is that adventurous and broadly adopted pedagogic change will be more difficult to achieve at the secondary level.

Finally, there is the issue of consistent innovation across year levels, subjects and classes within subjects. It might be noted that a Year Eight student, undertaking a typical course, is likely to have ten and possibly fifteen teachers during a normal year. If the school is of moderate size, with an enrolment of about six hundred and fifty students, at least forty teachers—probably more—would have some responsibilities for Year Eight students. These numbers illustrate the size, complexity, and the problematic nature of any change of pedagogy in a secondary school. Nevertheless, there are some principles emerging from the literature to inform change projects. They are summarized in Part H.

## **H. ACHIEVING PEDAGOGIC CHANGE**

One conclusion emerging from this review of some of the educational change literature is that changing what human beings do in classrooms is a difficult process. That is scarcely surprising since the strands that run through the topic are multiple, and inter-connected. The major themes can be summarized in seven propositions that might stand as principles for pedagogic change in secondary schools, and form the theoretical framework for the present investigation:

1. Given current demands for a genuinely student-centred, constructivist approach to learning, together with an emphasis on the acquisition of higher-level thinking processes, there should be significant changes to the current practices of most teachers.
2. Agents of pedagogic change should understand that they are instituting a complex and difficult process of conceptual change. Because change presupposes radical alterations to the personal practical theories of many individual teachers and students, the collective code of staff and students, and the culture of the school, appropriate strategies ought to be adopted.
3. The process whereby teachers and students are able to achieve changes to current practical theories may best be understood as a combination of assimilative and accommodative learning. Essential to the change process is the availability of a coherent and acceptable alternative to the theory being changed.
4. Teachers prefer to consider new theories of teaching within subject department groups where theory can be applied to their immediate practical context.
5. Managers of change should bring to their role an understanding of the nature of the change process, the complexities of teachers' work, and the culture of the particular school. Such understandings would then inform the management of their particular project.
6. Managers of change should be alert to the potential for structural and administrative factors either to facilitate or to obstruct change, and to make the necessary adjustments.
7. Schools have the responsibility to involve in the change process the students whose interests must stand at the core of the change, thus giving it validity and sustainability.

It is appropriate for detailed research to focus on any one of these elements of the change process, but those managing a project for pedagogic change in a school will be obliged to attend to all of them simultaneously. For change managers, it would be invaluable to possess one clear, over-arching precept that goes to the heart of change, yet encompasses all of the principles above.

The primary hypothesis of this study is that a successful, school-wide change of pedagogy is dependent on the alignment of multiple practical theories of learning, teaching, managing and changing to form a cohesive code for pedagogic change.

Chapter Three provides details about what information was gathered for this investigation, who provided it, how it was analyzed, and what steps were taken to draw and validate conclusions.

# 3

## Design and Methodology

Chapters One and Two have argued that, if educators are to respond appropriately to the community's five-fold demands—for more effective teaching in the present curriculum, enhanced pastoral care, adaptation to new technologies, revision of educational goals, and the application of a new paradigm for learning in the twenty-first century—they must first, individually and collectively, refresh or renovate their teaching behaviours. In particular, Chapter Two has emphasized the assertion of Handal and Lauvas that a teacher's 'practical theory of teaching ... is subjectively the strongest determining factor in her [or his] educational practice' (1987, p. 3). That is to say, the starting point for change is in the mind of each teacher, with the theory expanding thereafter to an informal code of practice shared with immediate colleagues. Since Chapter Two has also noted high failure rates for educational initiatives, it would seem imperative to investigate the capacity of individual practical theories and collective codes of practice to determine the success or failure of pedagogic innovation.

Thus, the driving principle of this study has been to listen attentively to the inner circle of participants in educational change. In this respect, encouragement has been gained from Wiersma's observation that:

... research on instruction in the schools should, at least in part, be ethnographic research [and] ... the meaning of reality is in essence, in the 'eyes and minds of the beholders', the way the individuals being studied perceive their experiences. (1995, p. 250)

Accordingly, the core activity of this qualitative investigation has been to gather personal accounts of experience from those most intimately involved in pedagogic change. Three distinct sources of information have been accessed: memoirs provided by trainee teachers in the Graduate School of Education at the University of Adelaide, transcribed interviews with teaching staff of two non-government, non-Catholic secondary schools, and transcribed interviews with groups of students from those schools.

Two closely related lines of enquiry have been followed. One was to investigate whether the practical theories of individual teachers and students engaged in pedagogic change, and their collective codes, were susceptible to change. The second was to examine what factors were deemed by participants to have either facilitated or encumbered the change process.

The methodological aspects of processing the memoirs provided by trainee teachers are discussed in Part A of this chapter, while issues associated with interviews of teachers in the two schools are reported in Part B. Methodology issues associated with interviews of groups of students in the same two schools are reported in Part C of this chapter. Each of Parts A, B and C of this chapter deals, in turn, with the context of the investigation, the gathering, displaying, and analyzing of data, and the drawing and verifying of conclusions.

## **A. TRAINEE TEACHERS**

### **1. CONTEXT**

During 2000 and 2001, written information was gathered from students enrolled in the Graduate Diploma in Education (GDE) course at the University of Adelaide. These men and women, already holding at least one tertiary qualification and, in many cases, coming from successful employment in a field other than education, were now approaching the end of an intensive, one-year program of preparation for secondary teaching. Because many of these



people were likely to have undergone a far-reaching revision of their ideas about teaching and learning, they seemed ideally positioned to comment on the experience of theory change.

As part of their assessment in the subject known as Student-Teacher Interaction in the Classroom (frequently abbreviated to the acronym STIC)—an introduction to learning, human development, classroom management and communication—these trainee teachers were invited to reflect on their own development as teachers during the course. Their papers, carefully crafted for assessment, often exceeding 3000 words, and candidly discussing personal experiences, have proven to be a valuable resource.

In recording memories of quite recent experiences of reflecting in and on practice (Schon, 1983), these pieces of autobiographical writing blend the immediacy of journal entries with a more measured appraisal of those experiences. That is to say, as Clandinin and Connelly assert, 'when autobiographical writing is shaped into an autobiography or memoir, it is a research text' (1994, p. 421). It is true that such a research text may be selective and subjective, but it is likely to emphasize events and ideas that have become important, continuing influences in the lives of the writers. Wiersma suggests to qualitative researchers endeavouring 'to obtain an accurate "measure" of reality' in the study of an educational issue, that it is 'the perceptions of those being studied that are important, and to the extent possible these perceptions are to be captured' (1995, p. 211). The memoirs submitted by trainee teachers have been a time-efficient source of abundant and relevant material. More to the point, they allow 'a searching of a person's mind' (Smolicz & Secombe, 1981, p. 23).

## 2. GATHERING DATA

As part of their major assessment, students enrolled in Student-Teacher Interaction in the Classroom were asked in both 2000 and 2001 to respond to the following question:

When you take up your first appointment as a teacher, the strongest influence on the learning activities of your students will be your own theory of teaching—a complex, ever changing collection of knowledge, experiences and values which is uniquely yours.

Many factors contribute to each person's theory of teaching, but we hope that professional education is an important one.

In this assignment you are encouraged to:

- Define your theory of teaching (about 1000 words).
- Explore and articulate the impact that this course ... has had on your professional development (about 2000 words).

In 2000, students were invited to make their papers available for this research project. They received an information sheet that outlined the purpose and intended application of the investigation, and were given an undertaking that strict confidentiality would be maintained; 59 out of a possible 123 papers were offered. In 2001, in order to encourage a higher rate of participation, students were provided with the same description of the research project and the same guarantee of confidentiality, and asked to opt out if they did not wish to participate; only one student subsequently did so. Thus, 127 papers from 2001 were available. Because of a failure to photocopy both sides of two papers submitted on double sided pages, and the absence of necessary information on one other, the combined total for the project was reduced to 183.

All of these papers were numbered in their year groups in alphabetic order. They are identified by the prefix V.00 or V.01 to indicate input from a university student in 2000 or 2001. The code includes a number (of three digits to facilitate uniformity for resorting data in Microsoft Access) to indicate position on the alphabetic list. The final student on the 2000 list has the ID of V.00:059, and the first student on the list for 2001 is identified by V.01:001.

With departmental approval, records in the Graduate School of Education were consulted to obtain the gender and subject specialization of each student, and to place each person in the appropriate age group (< 30, 30-39, > 40). The rather arbitrary age groupings attempt a loose differentiation of young, relatively recent graduates from those over 30 who were retraining or enhancing qualifications, and those over 40 who were initiating a significant change of direction in their life but would bring schooling experiences from an earlier era. The intention was to search for inter-age, inter-subject, and inter-gender variations in the capacity to change practical theory, and in preferences for support mechanisms during the change process.

Each of the memoirs has been read and a 'Summary of Memoir' sheet (Appendix 1) completed. The summary recorded three distinct types of information. Items 1 to 5 noted basic facts: the identification code assigned to individual students, the year the memoir was written, the day of tutorial attendance and therefore the tutor (which soon proved to be unnecessary), gender, age group, and subject specialization. Items 6 to 8 called for the researcher to make a yes/no response to questions about clear articulation of current practical theory, awareness of change in previous practical theory, and whether change was described. Space was available for an outline of any change recorded. The summary also tried to capture the essence of each trainee teacher's comments relevant to items 6, 7 and 8, and to reduce them to a symbol (Y or N) and page references for subsequent checking.

The remaining items on the summary sheet dealt with factors perceived by the respondent as promoting or inhibiting change. Item 9 listed ten topics predetermined on the basis of themes noted in interviews with teachers and in a rapid non-systematic sampling of memoirs from 2000. An additional category labelled 'other' provided a space for indicating that additional topics had been mentioned in the memoir. The topics were originally listed as:

- (a) Dissatisfaction with own schooling
- (b) Perceived needs of students

- (c) Inspirational mentor
- (d) Colleagues' influence
- (e) Formal studies in education (e.g. STIC)
- (f) Particular theorist (e.g. Steiner)
- (g) Head of Faculty or field experience supervisor
- (h) Field experience – success/trauma
- (i) Expectations of school
- (j) Frame factors in school e.g. assessment
- (k) Other

Coding proceeded on the basis of this list, but it soon became clear that (a) had to be expanded to include the positive influence of happy and successful schooling experiences.

Sub-categories also emerged in (d) to acknowledge what particular aspect of interaction with peers had been most influential: explanations of educational theory, models (either positive or negative) offered by the variety of presentation styles, hand outs for use as resources, and the supportive role of informal discussion. Item 9 was set out as a table with columns indicating whether a reference to one or more of the predicted factors had been detected and the page in the memoir where it could be found. Item 10 noted whether the respondent had indicated any barrier to change, and allowed space for a brief outline of the views expressed.

As each memoir was read, coding numbers consistent with Items 6 to 10 and parts (a) to (k) in Item 9 were recorded in the left hand margin of the memoir, and appropriate comments or symbols added to the Summary of Memoir sheet. In all instances where a particularly apt, illuminating, insightful or quotable comment had been made in the memoir, it was transcribed onto the back of the summary sheet (Appendix 2).

### 3. DISPLAYING DATA

All Summaries of Memoir have been placed in sheet protectors and stored in alphabetic order, by year, in two large lever-arch covers. This arrangement has been a helpful adjunct to the computer in facilitating the sorting and resorting of memoirs.

All data concerning age, gender, subject specialization, awareness of changes to pedagogic theory, and perceptions of factors that have promoted or impeded such changes have been summarized in a database using Microsoft Access (Appendix 3). Access was selected in preference to the more familiar Microsoft Word because its capacity for rearranging columns in datasheet view offered a facility for sorting and counting data in a variety of combinations and permutations. In this way, the 700,000 or so words in the memoirs have been reduced through 183 Summary Sheets to a six-page table.

### 4. ANALYZING DATA

The analysis of data in this study has been strongly influenced by the model proposed by Miles and Huberman (1994). In particular, the sub-headings in this part, which are repeated later in the chapter in comparable parts dealing with teacher and student interviews, reflect the four stages they advocate for data analysis: (a) Seeing what's there, (b) Sharpening understanding, (c) Seeing things and their relationships more abstractly, and (d) Assembling a coherent understanding of data.

#### (a) Seeing what's there

The first version of the Access Datasheet listed each of the memoirs in numerical order. Displayed across the page in landscape configuration were the symbols for change experience, gender, age-group, subject specialization, tutorial day, statement of practical theory, and then an indication of which of the (a) to (k) alternatives under Item 9 had been

mentioned. Completing this overview prompted the development of two additional codes for change. Because the original 'Yes' or 'No' (Y or N) categories had proven inadequate, D (for Development) was adopted to represent an intermediate category to stand between the Y of 'radical change' and the N of 'maintaining pre-existing views'. At the same time a category of N+ was adopted to distinguish those persisting with a modern, child-centred and constructivist theory from those who defended a more traditional, teacher-centred, "talk and chalk" view and had already been coded N. Each of the memoirs showing one of the problematic codes was read again and the original code amended to a Y, D, N, or N+.

In reducing the memoirs to these six sheets of paper, it became possible not only to cluster information and to count it where appropriate, but also to note emerging patterns or to sense trends that encouraged further analysis.

#### (b) Sharpening understanding

Subsequent versions of the datasheet re-sorted information by age group, gender, nature of change experience, area of specialization, and in various combinations of some or all of these criteria. In this way, subsets of data became readily available for the construction of tables used in Chapter Four to provide an overview of the various responses to change, and to quantify the more specific gender and subject related influences. Similarly, for Chapter Six, it became possible to trace the links between age, gender, change experience and subject specialization, on one hand, and preferences for change factors recorded in Item 9, on the other.

In most cases, as the process went beyond counting instances to expressing sub-totals as percentages of the whole sample, patterns emerged more readily. For example, it became possible to show that 42.6% of all participants experienced a significant variation of existing beliefs and practices, 12.6% reported no change, but a comparatively easy transition was

described by 44.8%—less than half of the participants. Contrasts and comparisons were facilitated, too. It was possible to show, for instance, that 21.3% of all trainees with a specialization in English indicated that their awareness of students' needs was a potent influence on their professional development; by contrast, the same response was made by only 14.8% of mathematics/science specialists.

That is to say, while this study has been essentially qualitative in nature—largely because of the nature of the information sought, but partly on account of the sampling restrictions that made more sophisticated statistical analysis inappropriate—an attempt has been made to convey some indications of relative numbers by using totals and percentages, thereby illuminating patterns and contrasts.

A different approach was adopted, however, when human attitudes were to be discerned. In particular, when the 'no change' category was analyzed, it was possible to detect sub-groups which could be clustered by using dimensions whose richness and complexity were most readily characterized by metaphors. In Chapter Four, accordingly, various sub-sets of the N category are classified by such labels as 'mechanics', 'born teachers' or 'defenders of the faith'.

(c) Seeing things and their relationships more abstractly

The search for greater abstraction proved to be a valuable aid to understanding. Establishing the commonalities amongst a number of factors—for example the overlap in the references in Item 9 to (c) Mentor or guest lecturer, (e) Formal studies, (f) Theory or theorist, and (g) Field experience supervisors—led initially to the recognition that these were all ways of acquiring a different or enhanced theory of teaching, and then inevitably to the overarching concept that theory change was, in fact, learning to do familiar things differently. Similarly, the clustering of factors (a) Own schooling, (b) Students' needs, and (h) Classroom experience emphasized

the importance of learning within a practical context, and an analysis of (c), (d) and (g) drew stronger attention to the range of interactions generated by multiple variables. These understandings, in turn, shed more light on the types of change response, which initially were defined in terms of whether change occurred or not, but eventually came to be described by the dominant learning mode that was experienced. Thus, subsuming separate factors into fewer, more general groups led to greater abstraction and clearer understanding.

#### (d) Assembling a coherent understanding of data

Writing accounts of the data relevant to Chapter Four and, later, to Chapter Six required another survey of summaries of memoirs, and a selection of passages to be cited. It also compelled a more formal statement of findings. Several weeks after the major parts of the two chapters had been drafted, overviews of the major themes in both chapters were written.

### 5. DRAWING AND VERIFYING CONCLUSIONS

Both Chapter Four, which deals with trainees' perceptions of the process of practical theory change, and Chapter Six, which records trainees' comments about aids and impediments to theory change, conclude with an overview. The first draft of each overview was reconsidered against journal notes, summaries of memoirs and, where necessary, the memoirs themselves (especially those that appeared to exemplify or dispute the pattern presented in the overview).

A few minor amendments to coding were made at this stage, and some themes clarified.

Subsequently, the amended overviews were compared with similar overviews written for the school-focused Chapters Five and Seven, and with the principles for pedagogic change proposed at the end of Chapter Two, in order to check for any marked disparities or lack of coherence.

The completed overviews now stand as the final part of each of Chapters Four and Six.



## **B. EXPERIENCED TEACHERS**

### **1. CONTEXT**

The second strand of the investigation took place in secondary schools. While the collecting of memoirs was an effective means of obtaining information from trainee teachers, it was unrealistic to expect members of a busy school's staff to put aside pressing duties in order to write the same considered response as was provided by trainee teachers writing for final assessment. Yet, the personal experiences and attitudes of experienced teachers were equally important to the study. Many teachers, however, will make some non-contact time available to talk to researchers. In order to encourage frank commentary through an absolute guarantee of anonymity, the time-saving tactic of speaking with groups had to be rejected in favour of the individual, semi-structured interview in which experienced teachers, who had been closely involved in pedagogic change, were enlisted as expert commentators on their perceptions of the process.

Approval was gained to conduct interviews in two non-government, non-Catholic schools. One of these schools was coeducational; the other was a boys' school. Both enrolled students across the complete range from Reception to Year Twelve, but in each school, the study was restricted to the secondary section. Because confidentiality was an important factor both in gaining access to information and in promoting the frank exchange of opinions, the schools are identified as School A and School B. Teachers are identified by the number allocated in chronological order to the interview and its transcript. It should be noted here that the confidentiality conventions place some limitations on any detailed descriptions that might be offered of the particular innovations being undertaken, or indeed on any publications that might in other circumstances be cited in this thesis.

B is a well-established, near-city boys' school, while A is an outer-suburban coeducational school that had been open for about 12 years when interviews took place.

There were several reasons for approaching these schools. Most importantly, both schools were known to be undertaking or contemplating programs that featured modern priorities in pedagogy, particularly the encouragement of active learning and the application of higher level cognitive skills in the middle years. Moreover, both schools stood alone in their decision making. In one sense, their plans were unencumbered by directives or constraints that might be found in school systems such as the state government's department for education or the Catholic Education Office. On the other hand, they did not have the same levels of advisory support and resources often provided by a school system. Each school's educational initiative was strongly motivated by the need to differentiate and promote its offering in a highly competitive environment. In each case, too, levels of staff morale and commitment appeared to be high. It seemed, therefore, that these schools offered an excellent opportunity to study a single school's effort to change itself. It also seemed that here the roles of individual practical theories and collective codes would be seen in their simplest and clearest light. In short, the schools were ideal candidates for 'purposeful sampling' (Wiersma 1995, p.214).

Limits to the size of the study were established by concentrating on English, mathematics and science, as these were areas attracting much attention from parents, employers, the media and politicians.

## 2. GATHERING DATA

The Principals of Schools A and B were interested in this project, and provided encouragement and support. Approval was given in both places to invite three well-established teachers from each of the English, mathematics and science faculties to speak confidentially about their experience of the change process in their school. Approaches were

also made to the leaders of the English, mathematics and science faculties, as well as resource teachers responsible for the library and information technology, and members of staff who were leading the innovation. In all, 19 invitations were sent to staff in School A and 21 in B.

The information sheet that was sent as part of the invitation presented an overview of the project:

... I have been especially interested in the intensifying demands being made of secondary education, especially in the areas of active learning, problem solving and creative thinking. I have been seeking explanations of why some schools and some teachers are better at readjusting methodologies to accommodate new goals than others seem to be.

... [An] important aspect of my investigation is to enlist experienced teachers, who have been closely involved in pedagogic change, as expert commentators on the process. I hope to speak to teachers of English, mathematics and science (subjects which attract much attention from parents, employers, the media and politicians), the Heads of these Departments, and other staff involved in managing the project. I hope, also, to gather from a sample of students their perceptions of the changes.

It also outlined the procedure intended:

I would very much like to arrange an interview with you to seek your perceptions of the change processes undertaken at [your school] over recent years. This will probably require between 40 and 60 minutes at a time convenient to you and could take place within the next 3 or 4 weeks, or it could wait until early Term 4 if that suited you better. During the interview we will also explore the factors that you see to be either helpful or a hindrance to the implementation of changes.

The rights of participants were made clear:

The interview will be recorded on audiotape. After transcription, I will return the text of the interview to you for checking. The information you provide will then become part of the data

to be analyzed in the thesis that I will submit for the degree of Doctor of Philosophy in The University of Adelaide ...

I would like to emphasize my commitment that the anonymity of published data will be strictly preserved and that the audiotapes and transcripts will remain absolutely confidential. I may be asked by [the Principal] to present a very broad indication of trends, but no details of your conversation with me will be released without your specific approval.

Participation in this project is absolutely voluntary and you will be free to withdraw from it at any stage.

Of the 40 experienced teachers who received invitations, 36 accepted by signing the Consent Form and indicating three preferences of date and time for the meeting. Two teachers from School A, who had dual responsibilities and for whom there was only limited time for the first interview, were happy to attend a second interview. In total, 38 interviews, each occupying one to two hours, were conducted with staff members—9 were leaders of change, 6 were heads of curriculum areas, 5 were resource teachers, and 18 were teachers of mathematics, science or English. In each instance, the interview was arranged for the first or second preference nominated by the teacher. This required a less than economic use of time, but seemed advisable in the quest for open and frank conversations. In both schools a reasonably private and suitable location was provided for the interviews.

Care was taken in each interview to allow the participant freedom to take the conversation in any personally relevant direction, but on a field notes sheet an agenda specific to the role played by the teacher in the school had been prepared. At various points during the discussion, interesting comments were noted, progress through the agenda was checked unobtrusively, and conversation gently steered in any necessary direction. Throughout the hour or so, the aim was to encourage the sense of sharing rather than of interrogation.

**Classroom teachers.** Interviews with classroom teachers were largely successful in covering the areas summed up in the following questions:

1. Can you identify a topic that you have taught both prior to and after the implementation of the project? Did you develop either or both of the versions, or were you using material or ideas devised by someone else?
2. In what ways does the post-implementation version differ from the pre-implementation version?
3. Do the two versions of the topic represent different beliefs about learning and teaching?
4. Do you think the post-implementation topic is an improvement? What reasons would you give to explain your response?
5. What do you consider to be the most important elements of your theory of teaching? Have your experiences since beginning this project prompted you to confirm or refine or revise your theory of teaching? Please discuss the reasons for the answer you have just given.
6. Has the experience of innovation been easy? Difficult? Interesting? Drudgery?
7. What were some of the difficulties? How were they overcome?
8. What was your first reaction to the proposal to change? What do you think now?
9. During the change process, what factors have you found helpful? A hindrance?
10. Have you been able to involve your students in the project?

The interview began by trying to focus on a familiar unit of work that had been rewritten for the new project. Questions 1 to 3, however, proved difficult or embarrassing, even when pursued with great diplomacy. This was the first inkling that publicized innovations had not met with complete success. Explanations of this situation are canvassed in Chapter Seven.

**Heads of department.** A different set of questions had been prepared for the heads of the English, mathematics and science departments. Here, a priority was to establish in the early

minutes of the conversation what the subject head thought of the innovation and the extent to which adjustments to existing syllabus material had been made. Also sought were details of any innovation-driven professional development conducted within the faculty, and the faculty leader's appraisal of progress made towards implementation; the latter topic had potential for showing glimpses of enthusiasm or complacency or resistance. The influence of frame factors such as assessment policies became apparent, as did the encouragement (or lack of it) for involving students in the process. Conversation about all these topics provided insight into the faculty leader's practical theory not only of teaching but also of managing pedagogic change at the faculty level. Most readily taken up were questions 6 and 7, which gave opportunity—and probably a rare one, at that—for important links in the management chain to give voice to frustrations, doubts or overload. The questions on the agenda for heads of department were:

1. How do the overarching goals of the project translate into objectives relevant to your area of responsibility?
2. What changes to syllabus or policy have been made?
3. Have there been alterations to other frame factors such as lesson times, assessment and reporting schedules, etc?
4. What professional development has been undertaken in your area of responsibility? Does it continue? How does it operate?
5. To what extent has your team taken up the new methodologies? Do individual members find the innovation relevant or irrelevant to the core tasks in this area of school life?
6. What difficulties have been encountered? Have they been overcome? How? Why?
7. Which members of the faculty would you expect to be especially interested in describing their perspective of the innovation at interview?
8. What has been the role of students in the project?

**Leaders of change.** The two groups previously mentioned—experienced teachers and their faculty heads—held the front line of pedagogic innovation, if such a bellicose image can be applied to schools, and contained the people deemed to be central to the study and highly comparable to the trainee teachers discussed in Part A. Nevertheless there were important other perspectives to be obtained from those who managed the innovation at their school. Questions in these interviews were largely concerned with the goals of the innovation, and the process for establishing it in the school. Opportunities to comment on difficulties encountered during the process of change and the value of involving students were repeated, because these were areas likely to reveal significant differences of opinion amongst staff. For leaders of change, the following agenda had been prepared:

1. What goals has the change sought to achieve?
2. What new outcomes for students have been identified?
3. What were the origins of the project?
4. How was the project implemented?
5. What resources were made available?
6. What professional development activities were planned? Does the professional development program continue?
7. What indicators of success are available?
8. What difficulties have been encountered? Have they been overcome? How? Why?
9. Have other concurrent initiatives or demands competed with this project for time, resources or focus?
10. What has been the role of students in the project?

These questions were cues to prompt information about the introductory stage of the pedagogic change, to seek an understanding of the change leaders' practical theories of teaching, learning, and managing change, and to encourage sharing of successes and failures. These teachers probably had the most comprehensive view of the project, whereas others were able to provide the micro-perspective.

**Resource teachers.** The teachers in the final group—those in charge of resources—may have been in a privileged position, since they were at once facilitators and observers of change. At first, it seemed likely that a realistic measure of implementation, and insightful comments on the process of managing change would be obtained from them. The agenda for discussion with these teachers was:

1. What input did you have to the planning and early stages of implementation of the project?
2. Has implementation of the project placed new or additional requirements on your area of responsibility? If so, have you had sufficient resources to meet these requirements? Were these requirements foreseen or unexpected?
3. Do the new or additional requirements seem to you to be congruent with the published aims of the project?
4. Have you observed significant and worthwhile changes in students' learning as a result of the project?
5. Are there any other comments about the change that you would like to offer?

Ultimately, the information provided by these people was seen to be valuable confirmation of others' views, and useful commentary on topics such as leadership, use of resources, and the success rates of different innovative projects. Nevertheless, their experiences were not at the core of theory change, and they were not reported as a separate group, but considered for



citing as supportive evidence in the parts of Chapters Five and Seven that refer to other groups of experienced teachers.

### 3. DISPLAYING DATA

At the end of the teacher-interviewing phase, 38 tapes, most of one-hour duration but a few lasting almost two hours, were transcribed in full, or selectively in a few cases where less information of strict relevance to the investigation had been provided.

The transcripts were returned to participants for checking, and some amendments were made as requested.

During the reading of transcripts, comments were added to field notes and a Summary of Transcript sheet (Appendix 4)—an expanded version of the original agenda for that interview—noted the answers provided. This process not only aided a review of information but, by grouping subsets of relevant information under the same heading on the summary sheet, facilitated the making of detailed comparisons. Included on the summary sheet was the same table that was used for recording information obtained for Item 9 from the memoirs of trainee teachers. Between the two groups—trainees and experienced teachers—there was, of course, a great disparity in numbers, but it seemed useful to explore, albeit tentatively, this opportunity to compare the change responses of beginning and established teachers.

### 4. ANALYZING DATA

#### (a) Seeing what's there

Since the numbers in each group of teachers were low, it was feasible to create five separate matrices displaying the chief points made in interview by teachers of English, mathematics,

and science, faculty heads, and change leaders. It thus became possible to count references to particular ideas, and to list themes emerging within and amongst matrices.

(b) Sharpening understanding

Some matrices were redrawn, so that comments of subject teachers, faculty heads and leaders of change were arranged in similar formats, with specific topics such as own role in change or real tasks or confrontation listed down the page, and transcript identification in columns across the page. This was a particularly useful strategy for perceiving the disparity, for example, between change leaders and heads of department on the issue of what tasks were most important to achieving successful implementation of change, or within the change leader group on the question of confrontation. The existence of differences of opinion (or practical theory) and their impact on innovation came to prominence through this reworking and re-sorting of information.

(c) Seeing things and their relationships more abstractly

As disparities came to light, it was useful to search for indications that leaders had anticipated the situation and had taken steps to deal with the potential problem. There was evidence of consultation on some matters, but it was seldom related to the nature of the change process or an effective methodology for managing change at various levels. Similarly, the discussions of change seemed to avoid reference to learning. That is to say, the exploration of areas of difference was the precursor to the more general concept that there was no shared code for managing change in either school—an important step forward in the study.

(d) Assembling a coherent understanding of data

In an approach similar to that applied to the memoirs of trainees, accounts of the data relevant to Chapter Five and, later, to Chapter Seven were written. This required the review of relevant

matrices and summaries of individual transcripts, and the selection of passages to be cited. It also compelled a more careful and precise identifying of findings. Several weeks after the major parts of the two chapters had been drafted, overviews of the major themes in both chapters were written.

## 5. DRAWING AND VERIFYING CONCLUSIONS

Once again, overviews—of Chapters Five and Seven, this time—were reconsidered against journal notes, summaries of transcripts and, where necessary, the transcripts themselves (especially those that appeared to exemplify or dispute the pattern presented in the overview). Results from the analysis of interviews with resource teachers were used to monitor the trends emerging elsewhere. A few minor amendments to coding were made at this stage, and some themes clarified. Subsequently, the amended overviews were compared with similar overviews written for the trainee-oriented Chapters Four and Six. The overviews for Chapters Five and Seven were also compared with the principles for pedagogic change proposed at the end of Chapter Two, in order to check for any gaps or marked disparities.

## C. SECONDARY STUDENTS

### 1. CONTEXT

Students are the other part of the classroom equation. They, too, have their own individual practical theories of learning (or perhaps, more realistically, theories of "studenting"), which coalesce into a collective code that shapes, as has been asserted in Chapter 2, their behaviour, motivation to learn, and attitude to schooling. Such a code can be a potent influence (for good or ill) on the outcomes of classroom activities. The opportunity to speak to students at both schools not only gave some relatively unobtrusive indications of the extent of implementation of pedagogic change in each school, but also provided information about the collective code

for learning that prevailed amongst students in each school. It was possible, therefore, to make some assessment of whether students themselves had enhanced or impeded the initiative, and to obtain student feedback that might confirm or dispute some of the teachers' comments—a useful piece of triangulation.

## 2. GATHERING DATA

Students were interviewed in small groups, for that seemed the most time-efficient, confidence-inspiring, and prudent way in which a visitor to the school might operate.

In each school, from lists of students in each homeroom group at each year level, one student from each group was selected, more or less at random. A member of the school's staff selected one numbered card, unseen, from a container holding sufficient cards for that class group. The number thus obtained indicated the student to be selected from the class list. Two modifications were made. To ensure gender balance, the selections alternated between female and male in the coeducational school; if, therefore, a girl was indicated by the number drawn when a boy was required, the first eligible boy down the list was chosen, and vice versa. Furthermore, as it was deemed important to be speaking to students who had experienced the innovation over at least two years, the school's representative indicated if a more recently enrolled student had been nominated, and the selection moved down the list to the first eligible student. In this manner, invitation lists were established in School A for seven Year Twelve students and eight students in each of Years Eight to Eleven, and in School B for seven Year Eleven students and six in each of the other years.

Information sheets, invitations, and consent forms (Appendices 5 and 6) were delivered through the schools' internal mail systems to 69 students, with appropriately adjusted copies of information sheets going to their parents. The dates, times and locations for interviews were displayed, arrangements for the replies and return of consent forms explained, and

contact addresses supplied. Only one parent made contact, and after a conversation about the purpose and methodology of the project, she allowed her daughter to participate.

Managing the process from a distance brought some difficulties in gathering tardy replies and consent forms. The choice of lunchtime for the discussions, assuming that to be the time when parents and teachers would least hesitate about approving, and when the selected students were most likely to be able to gather, proved too much for the (recently prompted!) memories of the younger students, particularly at School B. Nevertheless, the discussions took place, with 55% of invited students attending—10 from Year Twelve, 8 from Year Eleven, 8 from Year Ten, and 6 each from Years Nine and Eight.

For each meeting a pro forma was prepared for recording essential details of date, school, year group, students' names, and the questions that would constitute the agenda. There was space, too, for field notes.

Each session began with introductions and the distribution of name tags, a recapitulation of the information already provided, a reaffirmation of confidentiality, and the opportunity for each student to "break the ice" with a brief outline of his or her school activities. While this was happening, a rough seating plan was sketched in field notes to aid recall of names during the transcribing process. The interview then addressed the following agenda:

1. Have you heard about (the change project) at (your school)?
2. How would you explain to a visitor to your school what the project is/was all about?
3. In any of your classes, have you seen (the change project) in action? Please describe.
4. Do you think any aspects of your school life have changed because of the project?
5. Have you formed any opinions about the worth of the project?

The questions themselves and their order of presentation were soon modified when few students were able to identify the project without prompting or explanation. The sessions became much more open-ended than the agenda might suggest. Indeed, the sounds of lunch-time activities drifting into (and sometimes invading) the allocated meeting rooms might have posed later transcribing problems, but at the time certainly enhanced the informality of the sessions, even when the only available space in School A for the Year Eight meeting turned out to be the Principal's office. Discussions with these young men and women confirmed and enhanced confidence in young people; their openness, frank comments about their own schooling, and their obvious relishing of a rare opportunity to discuss core activities of their young lives were impressive.

Regrettably, items on the original agenda were seldom relevant to the daily routines of the students.

### 3. DISPLAYING DATA

There has been selective transcription of the audiotapes. As each tape was played, comments were added to field notes and, as for the teacher transcripts, entries made on the Record of Student Interview sheet (Appendix 7) on which all relevant comments were grouped under the original question. In addition, a verbatim transcript was made on system cards of all parts of the discussion that promised relevance to the items on the original student interview agenda or to topics listed on the Record of Student Interview sheet. The cards were then reviewed, and colour-coded stickers were attached to the top right hand corner of any card that required further consideration. A red sticker indicated relevance to individual practical theories of learning or collective student codes, orange denoted awareness of theory or code change, yellow signalled factors promoting or inhibiting change, green indicated frame factors and blue showed alignment issues. Some cards displayed two or three stickers, others none at all.

#### 4. ANALYZING DATA

##### (a) Seeing what's there

After an interval of some weeks, the augmented field notes, Record of Student Interview sheets, and transcription cards were reviewed. At the same time a matrix (Appendix 8) was created with a row for each of the ten student groups, and five columns for notes referring to practical theory, student involvement, barriers to innovation, facilitators of innovation, and an unspecified column for other items of interest. With a variety of highlight markers, the frequency with which items were mentioned was determined, and sub-categories within each column were differentiated.

##### (b) Sharpening understanding

The results of the counting and differentiation process were examined for patterns within each school and within each of the five year groups. On that basis, comparisons and contrasts between schools and year groups were attempted, and metaphors to catch the essence of student responses to innovation developed.

##### (c) Seeing things and their relationships more abstractly

A careful examination of entries clustered in a column of the student matrix led to a more generalized view of student experience. For example, spread over eight of the ten cells in column one (and, indeed, in all five cells from School A) there were repeated references to teachers giving knowledge, or to students listening or copying or getting good grades in tests. Common to many students was the expectation that they should be passive recipients of packages of knowledge. Similarly, there were notes in column four (especially from School A again) that suggest a vaguely articulated but potent interest in a different, more active and

problem-based style of learning. In other words, the major outcomes of the search for overarching themes were generalizations about the role played in innovation by students.

(d) Assembling a coherent understanding of data

Once again, the tactic used to clarify understanding of the memoirs of trainees, and the transcripts from interviews with teachers was applied to student interviews, too. Summaries of transcripts were reviewed, and passages to be cited were selected. A more formal overview of the major student-oriented themes was drafted several weeks after the student segments of Chapters Five and Seven had been written.

## 5. DRAWING AND VERIFYING CONCLUSIONS

Because students seemed to have been so clear and unequivocal in their views, and conclusions appeared to be so easily reached, two steps were taken to verify the findings from interviews with students. First, notes on the summary sheets for group interviews and the matrix covering all groups were consulted and compared with transcripts, to ensure no error had occurred. Field notes were consulted and in two instances the actual tape was heard again. Second, the student overviews were compared with comments made by teachers about students in Schools A and B, and more generally by trainees about their field experience in a wider range of schools. Subsequently, in follow-up interviews with the principals of both schools, some of the findings were tested against perceptions within the school and confirmed.

Findings arising from student interviews are presented within the final part of each of Chapters Five and Seven.



## **D. REPORTING THE DATA AND FINDINGS**

The next four chapters offer an overview of information gathered from the memoirs of trainee teachers, and from interviews with experienced teachers in two secondary schools and randomly selected students from Year Eight to Year Twelve in the same schools.

Chapter Four reports the experiences of trainee teachers as they refined, reconstructed or consolidated the individual practical theories of teaching they brought to the Graduate Diploma in Education course. The chapter describes three major types of response to a new pedagogy, and explores the influence exerted by an existing practical theory of teaching on the change process itself.

Chapter Five continues to focus on the practical theories involved in pedagogic change, but now the sites are the two secondary schools being studied, and the practical theories that influence four distinct groups in the schools:

- a. Experienced teachers of English, mathematics and science, and their theories of teaching;
- b. Heads of English, mathematics and science departments in the same schools, and their theories of managing change in their departments;
- c. Leaders of one or more of the change projects in each school, and their theories of change management;
- d. Secondary students and their theories of learning.

The interest in individual practical theories extends to note how they coalesce (or don't coalesce, as the case might be) to form a collective code that instructs and powers school-wide pedagogic change.

In Chapter Six, attention turns to factors identified by trainee teachers as promoting or blocking their personal efforts to change their practical theory of teaching. Chapter Seven

echoes the previous chapter's interest in changes to individual practical theories, but also searches for aids or barriers to code change in a busy workplace.

Care is taken in each of these chapters to support the analysis of data by providing an extensive and balanced selection of evidence, which involved both some counting of similar ideas and citing the actual words of participants in this study. Each chapter concludes by linking themes identified in the chapter with the seven principles for pedagogic change that were proposed at the end of Chapter Two.

# 4

## Theories in Transition

Trainee teachers were in a crucible.

They came from employment or a previous degree course into nine extreme months of lectures, tutorials, discussions, presentations, final papers and the practicum. By the end of November, they were qualified teachers. For the researcher, this was a rare opportunity to find out what such an intense and condensed experience was like for those immersed in it. In particular, it allowed a tight focus on the learning process of individual trainee teachers.

This chapter examines what the trainees wrote about the extent and nature of the change (if any) in the practical theory of teaching that they brought to the first weeks of the course. Part A offers an overview of the findings. Part B provides a more detailed account of those who described a radical change of practical theory, while Part C describes the experiences of those who reported evolutionary development. Part D deals with trainees who indicated no appreciable change to pre-existing views. In Part E connections are made between themes emerging in this chapter and the principles proposed at the end of Chapter Two.

### A. OVERVIEW

One hundred and eighty three papers were received from the 2000 and 2001 cohorts of Graduate Diploma of Education (GDE) students at The University of Adelaide. All papers were read for information about three related areas: the existence of a personal practical

theory of teaching, the nature of any changes or developments to that theory, and factors that contributed to the modification or maintenance of the existing theory. For each paper, a summary sheet was completed, and potentially quotable extracts were written on the reverse side. As an interesting indicator of the general quality of the papers, it might be noted that only 24 papers (or 13 % of the total) provided no potentially quotable comments, whereas 70 papers (or 38%) gained at least three entries; the one-entry and two-entry categories represented 30% and 19% respectively.

Of the 183 papers, 62.8% were written by women and 37.2% by men. 54.1% came from students who were under the age of 30, 24.0% came from those aged between 30 and 39 while 19.1% were from those aged 40 or over. Information about age was not available for 2.7% of students.

## 1. CURRENT PRACTICAL THEORY

It would have been most surprising—and, indeed, alarming—if postgraduate students approaching the end of an intensive teacher-training program had been silent on the subject of how they intended to approach learning and teaching. Without exception, they had firm ideas which they expressed with varying levels of precision and insight.

A common theme was the provisional nature of their current theory:

A theory of teaching should be dynamic—constantly reshaped by experience and reflection, by reading and training, and by interaction with peers. (V.00:039)

They recognized, too, that caring for students places multiple demands on them:

For me, being a teacher does not only consist of teaching subject matter to students but also fulfil other responsibilities. These days, teachers fulfil the roles of guidance counsellors, consultants and career advisors. Teachers are also perceived as 'friends' to the students so that

they can discuss their problems or any issues that they may have. This aspect is becoming increasingly important as many students are raised in single-parent families or have family problems. As a result, they tend to confide information to their teachers. Teachers are also expected to be good role models, a person who students can look up to. (V.01:048)

They understood that society, too, requires much of teachers:

The core values that underpin my teaching approach are a strong commitment to equity in education, both in terms of access and relevance of content; a belief in nurture vs. nature, i.e. that all students have the capacity to learn given the appropriate learning environment; that all young people have the right to a free education; and that if lessons are made interesting and relevant to students it can minimize any potential behavioural problems. I also think it is important to be mindful of the extraordinarily privileged position that teachers have in the lives of their students ... There is a very large burden of responsibility that comes with this position, and it is my personal belief that teachers owe it to their students to make sure that this responsibility is something which always influences the way they teach. (V.01:101)

The point at issue, here, was not whether the trainee teachers presented a view of teaching consistent with any particular theoretical position (indeed, many were careful to point out that they had created a composite theory that was distinctively their own), but whether, in writing about their current theory, they commented on the nature of any changes that might have taken place during such a formative experience. As it turned out, the memoirs are a valuable and abundant source of relevant comment on pedagogic change.

## 2. CHANGES TO PRACTICAL THEORY

An overwhelming majority of trainee teachers addressed the issue of change. A few, who seemed to be particularly aware of their context and audience, wrote circumspectly, but most accepted the invitation to discuss their professional growth candidly.

It was not easy, however, to sort all responses into unequivocal 'Yes, I changed my practical theory' or 'No, I didn't' categories. In fact, individual responses can best be understood as descriptions of an amalgam. This complexity was well represented by the reflective summary of a scientist in his thirties, whose experience and ambitions inclined him towards a tertiary career. As he describes it, the change process has elements both of assimilating new knowledge into what is already known, and of reconstructing knowledge to accommodate novel ideas, while preserving, and perhaps reorganizing, some pre-existing knowledge:

The course has influenced my understanding of teaching in the following ways:

1. By augmenting previously held knowledge.
2. By restructuring previously held knowledge in such a way as to clarify or correct understanding.
3. By introducing entirely new knowledge or concepts.
4. By raising the awareness of knowledge and skills held from unconscious to conscious thus allowing their assessment.
5. By drawing relationships between fields of knowledge. In several instances, this has been a direct consequence of the effect points 1–4 have had.
6. By organizing previously held knowledge into concise categories.
7. By putting names, of theories and theorists, to various concepts. (V.01:050)

Not all trainee teachers wrote so comprehensively, but the overall effect of their papers was to confirm the seven points quoted above.

Some, for example, concentrated on describing dramatic upheavals in their understanding of teachers' work; these were coded as Y. Others—coded as N—appeared to have persisted with pre-existing theories of teaching during the course. Within the N category were three papers which differed from the rest of that group by maintaining a constructivist, student-centred view that was in close accord with the contemporary understanding of learning advocated in

the text book for STIC. These papers were coded N+. Another group—coded as D—had clearly been on a learning path that was steady and incremental. These three major groups might be seen as representing the extremities and centre of the continuum, with other, contentious examples spread through the less certain areas between Y and D and N. Ultimately, for purposes of analysis it became necessary to settle on the three main categories and to allocate ambiguous instances to the dominant category.

Table 1, which provides more detailed information about the age group and gender of trainee teachers in each of the categories, indicates that, of the 183 memoirs, 78 were allocated to the 'Yes' category, 23 to the 'No' group and the remaining 82 occupied the middle ground of steady development. It will be noticed that 36.8% of all male responses were coded in the Y category, 44.1% in the D category and 19.1% in the N category. In comparison, 46.1% of all female responses were coded in the Y category, 45.2% in the D category, and 8.7% in the N category. However, the three memoirs coded as N+ (i.e. articulating a pre-existing theory that was strongly student- and activity-centred) were written by women. If these three memoirs are separated from the female N group, the number of women in N drops to 7 or 6.1% of all women. It appears, therefore, that in the 2000 and 2001 GDE groups, men are slightly under-represented in the Y and D categories but constitute a significant majority of the N Category. By comparison, women have a stronger representation in both the Y and D categories, but appear much less likely to be coded N.

TABLE 1: THE NATURE OF TRAINEES' CHANGE EXPERIENCE BY AGE GROUP AND GENDER.

Change	Age	Gender	Number	(% of all M/F)	Total	(% of all M+F)
Y Significant variation on existing beliefs and practices.	< 30	M	9	(13.2)	38	(20.8)
		F	29	(25.2)		
	30-39	M	7	(10.3)	19	(10.4)
		F	12	(10.4)		
	> 40	M	7	(10.3)	18	(9.8)
		F	11	(9.6)		
	Not known	M	2	(2.9)	3	(1.6)
		F	1	(0.9)		
	All Y	M	25	(36.8)	78	(42.6)
		F	53	(46.1)		
M + F						
D Steady accumulation of understanding and expertise	< 30	M	16	(23.5)	50	(27.3)
		F	34	(29.6)		
	30-39	M	8	(11.8)	16	(8.7)
		F	8	(7.0)		
	> 40	M	6	(8.8)	14	(7.7)
		F	8	(7.0)		
	Not known	M	0	(0.0)	2	(1.1)
		F	2	(1.7)		
	All D	M	30	(44.1)	82	(44.8)
		F	52	(45.2)		
M + F						
N Understanding and practices largely unchanged.	< 30	M	5	(7.4)	11	(6.0)
		F	6	(5.2)		
	30-39	M	5	(7.4)	9	(4.9)
		F	4	(3.5)		
	> 40	M	3	(4.4)	3	(1.6)
		F	0	(0.0)		
	All N	M	13	(19.1)	23	(12.6)
		F	10	(8.7)		
M + F						
All memoirs		M	68	(37.2% of M+F)	183	(100)
		F	115	(62.8% of M+F)		



Age may emerge from the 2000 and 2001 memoirs as a factor to be considered, too. 38 men and women under the age of 30 (20.8% of the total sample) reported significant changes to their practical theory of teaching, whereas 50 (27.3%) referred to steady development and 11 (6.0%) indicated that their understanding and practices in the classroom had remained largely unchanged. Of those aged between 30 and 39, 19 (10.4% of the total sample) were in the Y category, 16 (8.7%) were in D, and 9 (4.9%) were in N. Of those 40 years or more, 18 (9.8%) were in Y, 14 (7.7%) in D and 3 (1.6%) in N. It seems possible that trainee teachers over the age of 30 are more likely to have to undergo a significant revision of their practical theory of teaching, whereas those over 40 may be less resistant to a theory change than those in the 30–39 age group.

It is likely, too, that gender and age should be examined concurrently. Table 2 is a simplified display of the age/gender relationship in each category of change. The Y, D, N+, and N columns show the percentage of all males and of all females respectively in the change category for each age group.

TABLE 2: PERCENTAGES OF ALL MALE AND ALL FEMALE TRAINEES, DISPLAYED BY AGE GROUP AND CHANGE CATEGORY.

Age	Gender	Y	D	N+	N
< 30	M	13.2	23.5		7.4
	F	25.2	29.6	1.7	3.5
30–39	M	10.3	11.8	–	7.4
	F	10.4	7.0	0.9	2.6
> 40	M	10.3	8.8	–	4.4
	F	9.6	7.0	–	0.0

These data suggest that men in each age group are less likely to adjust easily to pedagogic change, but this tendency is especially noticeable in the 30–39 age group.

Another perspective is illustrated by Table 3 where the change categories are related both to gender and to specialization in English or mathematics and/or science. In each case, the percentages of all men or all women in the total sample are shown.

TABLE 3: PERCENTAGES OF ALL MALE AND ALL FEMALE TRAINEES, DISPLAYED BY SUBJECT SPECIALIZATION AND CHANGE CATEGORY.

Student Group	Gender	Y	D	N+	N
All	M (n = 68)	36.8	44.1	–	19.1
	F (n = 115)	46.1	45.2	2.6	6.1
English	M	7.4	7.4	–	4.4
	F	12.2	14.8	–	1.7
Maths and/or Science	M	16.2	14.7	–	11.8
	F	13.0	7.0	–	1.7

The accumulation of men in the N category is again noticeable for English specialists and pronounced for those training to teach mathematics and/or science. It is interesting to note, also, that considerably more women specializing in mathematics and/or science were in the Y rather than the D category. This variation from the general pattern—especially when linked to the high proportion of male mathematics and/or science teachers in the N category—may reflect an approach to teaching that is in strong contrast to the way that English is taught and, consequently, a correspondingly different response to pedagogic change.

To summarize this part of the chapter, it might be said that most trainee teachers were aware of bringing to their study program a bundle of ideas about teaching that were based on prior experience. In the majority of instances, they recognized that their views had changed by the

end of the year. Four major categories of change are described in the memoirs. It also seems that the responses to change were not uniform across the sample, but were influenced by age, gender, and subject specialization. A more detailed discussion of the different types of response is to be found in Parts B, C and D of this chapter.

## **B. TRAINEES REPORTING RADICAL CHANGE**

From the total sample of 183, 78 memoirs (or 42.6% of the total) emphasized the experience of pedagogic change as either the acquiring of a new understanding of teaching and learning, or the significant adaptation of an existing understanding to deal with a new situation, or a combination of both. Almost without exception, trainee teachers who wrote these memoirs referred to a sense of novelty or surprise or an awareness of incompatibility or confrontation. They were often able to point to a particular incident or occasion which triggered the accommodation of new understandings.

### **1. GRASPING THE NEW IDEA**

When beginning teachers in this group wrote about new knowledge, they used words like 'I discovered ...', 'I had never heard of ...', 'I did not realize ...', 'I was repeatedly amazed', 'It was quite a revelation', and 'I had no idea'. There were memorable images like 'I had a major mental shift in how I saw myself as a teacher' (V.01:077) and 'being a good teacher ... is like bouncing thirty basketballs at once' (V.01:105). To catch the sense of surprise and of the struggle to accommodate changes to cognitive structure, a number of extended quotations may be appropriate.

A teacher of Japanese with some prior teaching experience began by writing:

Over the months my theory of teaching has dramatically changed; there has been an obvious shift from teacher-directed learning to student-centred learning ... [the course] has made me stop and think and see the importance of questioning commonly held methods and my current state of understanding of teaching in the classroom. The course makes me think about things I have not really thought about in such a deep way. (V.01:008)

A man in his 40s, who had already spent 10 years as a teacher of theology and was now switching to a career in secondary English and Studies of Society and Environment (SOSE), wrote that he 'would have been pulled up short had anyone asked me, "What is your current theory of teaching?" ' He went on to recount a fundamental revision of his previously unarticulated practical theory of teaching:

I wish I had known before I began [lecturing] all that I now know ... It is not only that I am learning much that is new to me, but that I am gaining an overall frame of reference for my task as a teacher, so that I understand the dynamics of what is actually happening in the teaching/learning situation. Prior to this subject ... I always just assumed that learning happens when there is teaching. (V.00:059)

The novelty and excitement of defining her practical theory for the first time is captured in the memoir of another mature-age trainee teacher:

Although I have been teaching ... for the past 22 years, I have never consciously developed my own theory of teaching ... I have always relied on my experience, my knowledge in my subject area, my instinct ... It has been and continues to be an exciting and very worthwhile time spent focussing on the many issues raised in [the course]. (V.00:049)

A much younger person, a science graduate, acutely aware that 'I have modelled my idea of teaching upon what I myself experienced at school', and recognizing his 'beliefs fit with various theories of educational psychology well and may not have changed', must acknowledge:

The constructivist approach to learning came as a revelation to me. Embarrassing though it may sound, I probably did have the notion that teaching was about some kind of outpouring of knowledge that would somehow magically infuse my students' consciousnesses. Although I had been exposed to scaffolding as an idea, I hadn't really integrated it into my world view. Ironically, I had to build my own understanding based on the lectures and tutorials of the course. (V.01:026)

A young woman, preparing to teach English, notes that her experience in group management as a swimming instructor was:

... particularly useful to me when I went out on my first teaching practice ... *However* (and this is a big however), I have since learned that there is considerably more to teaching ... Throughout this year I have been repeatedly amazed at the amount of knowledge and skills one needs to have in order to teach effectively. It is not, as I previously thought, a matter of reading a book with a class and then handing out an assignment. It is a *lot* more. (V.01:049, her emphasis)

Similarly, a young musician found that he had 'changed [his] perception of the teaching profession and the nature of education':

As a secondary student I saw the teacher as a supervisor; today I see the qualities of an educator, strategist, friend, psychologist, parent and mediator all rolled into one ... I teach now not for the money or the holidays but rather to prepare the young people in my care to take their place in the world, facilitate personal development and equip them with knowledge, skills and attitudes to understand and contribute to the community. I feel I am embarking in an honourable profession. (V.00:053)

Another mature-age trainee teacher presented the now familiar account of theory change, but she did so with such clarity and detail that one key paragraph deserves to be quoted in full:

In February when I wrote "learning how to involve the class more in lessons", I had a very limited understanding even of what I was trying to say by making this statement. Somehow I sensed that in my previous teaching experiences, mostly in the teaching of adults, my students would have benefited more if I had taken the focus off me, the teacher, as the transmitter of knowledge and given the responsibility for learning to my students. I did not however understand such things as *a student-centred approach to learning* or *constructivism*. In our discussions on the role of the teacher, I realized I had not critically viewed my own teaching style until now. Until then, when teaching, I had been using the only model I knew, that of the teachers that had taught me, a teacher-centred approach that did not involve any student input into what was being taught. When I looked critically at the way I structured classes, I realized that I was placing too much emphasis on the teacher instead of moving the emphasis onto the students. Once I changed this critical perspective, I realized I could structure lessons so that most of the time students were actively participating in what was being taught. My view of the role the teacher plays in the classroom changed from a view of the teacher as the pivotal transmitter of knowledge, to the facilitator, providing essential key information from which students construct their own meaning. (V.01:101)

Perhaps the last word in this section can be left with a scientist who, as she reflected on the course itself and its field experience opportunities, realized that 'a miraculous transformation had occurred. My "woolly knowing" had become the professional knowledge and past experience of a novice teacher' (V.01:127).

## 2. CONFRONTATION AS THE SPUR TO CHANGE

To this point, we have seen trainee teachers encountering new ideas and responding to them in ways that, if not always pleasurable, were at least positive, challenging and rewarding. In some instances, however, the impetus for changing a practical theory of teaching was the strong awareness of incompatibility.

Sometimes the focus was on the trainee teacher's desire to do better and the recognition that alternative strategies could be accessed:

My first year of teaching was a shoddy experience that is better thrown to the bin, for it was bereft of any significant theory and application [to] teaching. (V.00:010)

Looking back on my practicum, and considering many of the problems I encountered during that time, I realize that many of those difficulties stemmed from huge gaps in my professional knowledge, especially with regard to the management of adolescents in the classroom setting. (V.00:024)

Words like 'disappointing', 'not how things really were', and 'I had to rethink' were common. Confrontation blending into disillusionment permeate the story of a young woman, specializing in English, who brought from her own successful secondary school days an idealistic practical theory that was soon to be found wanting:

I embarked on this year with the attitude that students were all empty vessels, eagerly awaiting my instruction and every bit as enthusiastic about my subject as I am. My students would all look forward to my lessons. I would stand out the front, and educate and inspire them. They would have already developed the basic social skills which required them to sit still and silent while I spoke, and to offer their own opinions in an appropriate, and well-expressed manner when I gave them the opportunity. How I could have forgotten the nature of adolescence and puberty so soon after experiencing it myself, I have no idea.

The fact is (as I learned all too quickly) students already have their own opinions about everything - even if they don't know anything about it. They don't really care (for the most part) what I have to say. They see my subjects as irrelevant, and odious, as they are compulsory, rather than elective subjects. They do not look forward to my lessons. I can not stand out the front and educate them (let alone hope to inspire them) unless I have taught them the very social skills that I initially expected they would have already. Most of the time, they

will not wait for the appropriate juncture to offer their (often ill-expressed) opinion. The rest of the time, they would rather not offer an opinion at all, but would rather sit there dully and wait for me to tell them what to think—and how to go about it (i.e. thinking) in the first place. Indeed, for many of my students, the entire concept of school is seen as a cruel, and unnecessary, infringement on their personal time, which would be better spent watching daytime soap-operas or surfing the net. My theory of teaching necessarily had to be readjusted in order for it to survive in the hostile environment in which it found itself. (V.01:028)

There are grounds for optimism, however, for this young teacher recounts later in her paper that she has learnt to establish 'better understanding and empathy' with her students, and to use the resources provided during the course to analyze students' behaviour and deal with it appropriately.

One of the most striking illustrations of how difficult and painful it can be for those undergoing theory change came from a mature mathematics specialist. His prior experience in overseas schools had been in classrooms where, typically:

The teacher is delivering a speech, writing notes on the blackboard, and giving examples.

Students take notes, copy the blackboard and follow the teacher's example. (V.01:033)

Now, he must adjust to a context in which a teacher is deemed to be a 'facilitator rather than an instructor', and must 'negotiate' with students and provide 'a variety of methodologies'. He reports:

Honestly, at the beginning of this course I was not sure if I am going to enrol. On one hand, I was shocked by the system of education requirement for becoming a teacher. On the other hand, I remembered myself when I was teaching math at the age of 19 in a girls' school of students' age range between 12 and 16. Now, after all the experiences I have had through my age, I am requested to do this course in order to fulfil the requirements; [it] makes me feel really sad. I am entitled to teach in university or TAFE, but not in high school! Why is that



happening in a modern society like Australia?

After coming to this course, all of these questions have been answered. (V.01:033)

### 3. RESPONDING TO NEEDS

The unmet needs of students (rather than the self-esteem of teachers) figure prominently in some of these memoirs. One trainee mathematics teacher (V.01:093) identifies two 'watershed moments' in her professional growth. The first came when she recognized that her own preferred way of learning would not suit every student in her class and she needed to develop an approach to teaching that was less 'one-dimensional'. She continues:

The second watershed moment came for me on teaching practice, when I encountered just how varied the abilities of a class of students can be. I also discovered that teaching the curriculum was the least of my concerns ... This course has made me recognize the importance of understanding the components which make up students' learning in order to recognize the individual learning needs of my students. (V.01:093).

Another young woman with a specialization in Studies of Society and Environment declared:

It was not until I actually got into a classroom [that I] realized that my particular teaching style did not suit all the students in my class. (V.01:021)

On a similar note, an older woman with expertise in science wrote:

The realization that different individuals have particular ways of learning that could be quite foreign to my own made me consider that teaching has more to do with craft than technique. STIC has made me rethink many cherished beliefs and values, has confronted me with my own personal prejudices, and helped me redefine the way in which I can make education more inclusive for those students who will ultimately fall under my professional care. (V.01:046)

Again, teacher-centred attitudes came to be questioned by a young scientist when she encountered the real classroom for the first time as a teacher:

At times, before I did my first teaching placement, I didn't really consider that I would need to listen to the students. It was simply important that they listened to me. (V.01:108)

Recent quotations from memoirs illustrate important shifts in attitude away from an authoritarian, teacher-dominated delivery of curriculum towards active student-focused learning. Such a significant change in pedagogy can be attributed, in part, to the availability of a convincing, alternative theory that promises resolution of perceived difficulties. Another impetus for change may lie in a closer acquaintance with, and deeper understanding of, the young human beings who are doing the learning. This last point is strikingly made in an anecdote related by a music teacher, who drew on her one-to-one teaching of the clarinet. One particular student seemed shy, awkward and disinterested:

When I would say, "Hello", to him and ask how he was, he would only ever grunt back one word answers in a soft monotone voice which I could barely hear and he would never make eye contact! I tried each week to be nice and friendly and hoped he would open up and become a little more enthusiastic like a lot of my other students are, but it never occurred. In the end I would just be "going through the motions" in his lessons and I probably gave the impression to him that I thought he was not doing well. He never seemed to practise and only just scraped through to pass his clarinet exam last year.

I had practically given up hope and, unfortunately, I think he could sense it, which only made it worse ... I always thought the problems were because of his faults—never mine! (V.01:081)

However, she chanced to have a conversation with the young clarinet player's home room teacher, who spoke enthusiastically of his maturity, humour and delightfully outgoing personality.

I thought she must have been talking about someone else because it didn't sound like the [young man] I knew ... I felt sad that I had always put [him] into a "too hard" category in my own mind and always viewed him as never succeeding at the clarinet. I felt upset that there was another side to him I had never seen, probably because he had sensed that I didn't enjoy teaching him as much as many of my other students. The next time I saw [him] I treated him as a funny, mature, enthusiastic and outgoing person, and strangely enough he started to behave that way. I started treating him like he was a worthwhile student who I was happy to be teaching and he seemed to respond in the way his school teacher mentioned ... [he] still isn't the world's best clarinet player, but because I have learnt to treat him differently he has felt much more comfortable and has made some progress on the clarinet.

... I am grateful to [the] classroom teacher for showing me that side of him, and to this course for making me realize he never had a problem—the problem was mine all along. Once I realized he was a person before he was a clarinet player our relationship was better ... I now really enjoy his lessons ... Now he knows I value *him*, he is willing to value what I have to say about clarinet playing and he is starting to improve! (V.01:081)

### **C. TRAINEES REPORTING EVOLUTIONARY DEVELOPMENT**

With 82 members (44.8% of all trainee teachers), this was marginally the largest group and perhaps the easiest to characterize because of its high level of homogeneity.

Members of this group reported a growth in knowledge and skills, as well as the emergence of a distinctively teacher-like perspective on classroom activities. A change in practical theory occurred, but it was generally described in terms of learning, growth, evolution, development or extension of what was already known. There was no reference to the upheaval or wrenching reconstruction of understanding that typified the extremes of the Y Category. Instead, trainee teachers in this group tended to express mild surprise at whatever progress they had made:

Until I sat down and started thinking about [this] task ... I hadn't realized how much the things we have done in this course have impacted on my development professionally, particularly my thinking. (V.01: 056)

Another wrote:

Only by looking back now to the beginning of the year do I realize how much I did *not* know. (V.01:037, her emphasis).

It was learning that was singled out for specific mention by the largest sub-group, 24 out of 82, in this D Category. A young woman who specialized in English and Languages Other Than English (LOTE) commented:

I learnt about things I had never really considered as relevant to teaching and found out that they are indeed of vital importance in the classroom ... I have come to more fully understand and appreciate the concepts of learning and teaching, behaviour management, communication, development, classroom awareness and time management. (V.00:053)

Another young woman, also a teacher of LOTE, described how valuable the study of motivation had been for her:

It was not only interesting but indeed useful to look at exactly what energizes or directs behaviour ... I believe that knowing why some students always seem to be motivated and others don't, and more importantly how we as teachers can use our knowledge of the factors behind motivation to engage the interest of all students is a necessary skill for all teachers. (V.01:036)

Another trainee teacher, again a young woman, this time with Mathematics and LOTE as her teaching subjects, caught both the importance and the excitement of learning and really knowing when she wrote:

Learning is its own motivation. That moment when we see the connection, that 'ah ha' feeling, is what makes learning an incredibly satisfying and enjoyable event ... I have found that putting an expert in front of a class and filling the board with notes does not get many 'ah ha's from the audience. Under this sort of instruction, the 'ah ha's come late at night while studying for tests or completing assignments. (V.01:045)

Another sub-group, almost as large with 22 members, referred to the continuous growth, or the gradual accumulation of insight, that had marked their year. Typical were the words of a young, overseas mathematics teacher when she commented:

A teacher's education is not just ... knowledge of their subject matter and diagnostic skills, but with the teacher's beliefs, conceptions and personal theories about subject matter, teaching and learning. A teacher must be willing to constantly learn and grow, and be a student forever. (V.01:100)

A young mathematics and science specialist, who had given an account of his growth in the profession, foresaw a continuation of the process after completing the course:

I suspect that when I'm 60 and have been teaching for 30 years, I might have some idea of what I'm doing in the classroom. Until then, I will try, and try again, and always learn from my mistakes. (V.01:070)

A SOSE specialist in the over 40 age group actually used a growth image as she reported on her experimentation during field experience:

I would not have risked the techniques employed during my teaching if the seeds had not been previously planted during the Student Teacher Interaction in the Classroom course. Whether this knowledge was imparted by individual student teachers through their presentations, or by the tutors through their lectures, the effect was the same and very beneficial. (V.01:044)

Others, 17 in number, either used the word evolution to describe their professional development, or wrote of an unfolding of understanding. A music teacher summed up the nature of her learning experience during the course as:

... one's own theory of teaching and learning is constantly evolving ... with different experiences, environments, discussions with others, and professional reading leading to a reshaping of thoughts and behaviours. (V.00:055)

Another 13 sought to capture the nature of their experience in words like 'broadened', 'extended', 'enhanced', 'deepened', 'expanded' or 'built on'. The notion of refining knowledge that already existed was beautifully caught by a young teacher of LOTE and SOSE; he recounted his readjustment when 'the goals of the dominant Western culture' that underpinned his understanding of teaching proved to be 'invalid in an indigenous context ... [which] centred around the community and the compatibility of different identities'. He went on to write:

... our understanding of schools, often derived from the perspective of being a student, is not always accurate. The course ... has, above all, sharpened my soft-focused image of schools and schooling. (V.00:039)

In a miscellaneous sub-group of the D Category, one former soldier and police officer wrote of adapting his previous theory of instruction to the new context of secondary schools (and thereby provided an interesting contrast with those from a similar background whose views are reported in Part D that follows):

The introductory school visit ... was very influential ... Without this, I would have been operating on a misunderstanding of how the modern classroom environment operates. It would have been too easy, and very unhelpful, to continue in the blithely ignorant misunderstanding of the classroom that I held prior to commencing this course. (V.00:051)

Also in the miscellaneous sub-group were four trainees who saw their year as the gathering of more and more strategies or techniques to cater for individual differences in their classes. A young, male mathematics teacher declared, 'We need to have as much in our tool bag as we can' (V.00:017), while a female science teacher asserted, 'This course has undoubtedly provided me with a knowledge I consider to be like a toolbox' (V.01:061).

In a sense, the distinctions drawn between the sub-groups in this category may seem semantic or arbitrary, but the overwhelming impression must be one of steady, unremarkable, gradual change. Perhaps it is the very lack of passion, the absence of confrontation, that signals, however faintly, the threat embedded in the seemingly comfortable growth patterns reported in this section. The words of a young English and SOSE teacher are cause for concern. Early in her paper, she had equated growth with acquiring new strategies. Later, as she contemplates the future, she asserts:

I will continue to learn new things as long as I am in this job. Still, I do not believe that these things will be in theory lessons or academic lectures—they will be tricks of the trade learned in schools and in the classroom, both on purpose or, most likely, by accident. (V.01:038)

#### **D. TRAINEES REPORTING CONSOLIDATION OF EXISTING VIEWS**

Twenty-three memoirs (or 12.5% of the total) were identified as belonging to the N category; that is to say, the practical theory expressed in the paper appears to have remained largely unchanged during the course of study. Of these students, 10 were female, with 6 being younger than 30 and the remaining 4 in the range of 30 to 39 years. Amongst the 13 males in this category, there were 5 under the age of 30, another 5 in the range of 30 to 39, and 3 aged 40 or more. It was noteworthy that males, who constitute 37.5% of the total sample, made up 56.5% of the N category.

Furthermore, of the 23 students in the N category, 1 was a female specializing in English and 5 were male English specialists, while 3 females and 7 males were specialists in mathematics and/or science. That is to say, those with a specialization in English or mathematics and/or science make up 69.6% of the N category. By contrast, the combined totals of 47 English specialists and 54 mathematics and/or science specialists represent only 54.9% of the whole group.

Age, gender and subject specialization appear to be influences in the definition of the N category.

Common to all memoirs in this category was the sense that the writer had formed strong views about a teacher's work prior to joining the Graduate Diploma in Education course. The group was by no means homogeneous, however. Indeed, a number of sub-categories became apparent.

## 1. CONTENTED SCHOLARS

Firstly, there were three papers (coded N+) that articulated a pre-existing theory that was strongly student-centred and activity-based. In these cases the constructivist emphasis of the textbook for Student-Teacher Interaction in the Classroom course (McInerney & McInerney, 2002) and the South Australian Curriculum Standards and Accountability Framework (DETE Curriculum Policy Directorate, 2001) were seen as affirmation and extension of a view that had already been formed.

One trainee teacher, for example, describes why her own schooling was a far more powerful influence than any subsequent experience:

My theory of teaching relates to the way that I was once taught when I was a child. My early experience with schooling and educators formed my recent views on teaching. I came from a



small town in Lebanon where traditional teaching was used in public schools. Students used to listen to the teachers, take notes and never tend to interact in any way. If a lesson was misunderstood or not clear, they would never have courage to ask the teacher to repeat or explain. It was all a teacher-centred way of teaching. However, as I was sent to a private French College in the city, I had the privilege to experience different ways of schooling and learning. At my school students were as active as teachers. We shared ideas and did communicate. There was mutual respect and students received encouragement and support. As a result, I developed my own theory of teaching. (V.00:029)

Then again, a negative personal experience of schooling can be just as formative. Another trainee teacher, after beginning with the declaration:

I have always said, "If a ... student leaves the teacher, after a designated period, and still knows nothing about the subject, it is not the student who has failed",

reveals before the end of that paragraph the origins of the commitment to student learning and, later, the teaching principles that flow from it:

This philosophy still holds true to me, even more so now than it did when my own children were going through school when I had many a strong discussion with some of their teachers ... The challenge for me (and my duty to my students) is to identify the needs and interest level of each student and adapt my style and approach to teaching to accommodate the whole class, and to constantly seek feedback from the students and if necessary alter my style and approach to adapt to any changes in their responses to my teaching. (V.01:121)

## 2. SAGES ON THE STAGE

On the other hand, traditional, teacher-centred approaches were reported and defended in 9 of the memoirs:

Teaching means the passing of knowledge, information, skills and attributes ... Teachers should be able to motivate, develop and instil a sense of belonging in learners ... Students have to be made responsible citizens ... Teachers should be able to instil in students respect for self and other. (V.01:096)

I believe that the best way to teach students is to: 1) thoroughly prepare lessons, 2) gain and maintain student attention, 3) give instruction in an environment where students will become active learners, by which I mean, students display a degree of action in their process of learning, and 4) regularly assess student knowledge and skills to ensure learning has occurred ... [STIC] has reinforced some of my preconceptions of what it takes to be an effective teacher, and has given me the confidence to follow these convictions through. (V.00:050)

Such a strong focus on learning outcomes and teacher responsibility was frequently softened by human touches, a strong sense of professionalism and a genuine concern for the well-being of students:

I believe that being an educator is the process of not only imparting knowledge, but a bit of yourself as well. Teaching is a noble profession and one which requires passion and feeling and I think that this can only come about by drawing on your own experiences and relying on your personality to engage the interest and motivation of your students. (V.00:002)

I will use my personal power and the confidence to be highly enthusiastic; gain the attention of students by showing them respect, love and care; and provide them with a friendly and inspiring learning environment where they can feel safe, relaxed and happy to concentrate on their studies. (V.00:011)

Throughout the papers of which these extracts are typical there are echoes of the noble altruism expected of teachers in earlier decades and an indication of how firmly they are established even today. The enduring influence of established educational philosophy and methodology was nicely caught by the trainees who wrote:

I was not impacted by the theories [discussed in S-TIC] because I have always had a role model of what a teacher should be. I asked my grandfather what his theory of teaching was and on the spot point after point was discussed. Page 12 of McInerney and McInerney has a list of essential teaching skills for effective learning; these were all covered ... From a very young age my mother would tell me why he was such a good teacher, how he often had to teach several year levels at once, was always organized and in control etc. So even when I went to kindergarten I had a firm idea of what a teacher should be like. (V.01:047)

I personally learn best when I am fed information and given a diagram to summarize the information. This may be because I am self-motivated to learn in humanistic fashion. When faced with a constructivist problem, I grow frustrated and find it too difficult because I am used to being fed information. (V.01:102)

### 3. MECHANICS

Another sub-group of four trainee teachers, while closely aligned to the Sages on the Stage in their preference for teacher-centred classrooms, exhibited both a mistrust of theory and a strong interest in the techniques of classroom management. For example, one commented:

Being a professional course, this subject should ensure that it maintains a focus on the practical application of the content, rather than merely exploring a variety of theories, definitions, and psychological frameworks connected with education ... The extent to which learning theories were studied ... would perhaps be better suited to those who wish to pursue a career as a full time school psychologist, or a school counsellor. (V.01:089)

He evinces little concern for understanding how students learn, but finds merit in things that are more practical:

The first section of the course that had a positive impact on my professional development was concerned with the writing of lesson plans and the practical implementation of lessons ... The

... subject examined and discussed the format of a lesson plan, classroom structure and underlying principles in significant detail. These lectures proved to be especially useful during the practical component of the course. (V.01:089)

This practical orientation is echoed in the comments of V.00:063 who, when reviewing the 'few things [about the course] that stick in my mind', writes that the 'big ones for me were looking at lesson preparation and planning'. Similarly, V.01:006 concentrates on 'everyday things such as our physical posture, clothes, facial expressions, and general body movements', and suggests that the 'tone and volume of our voice and the continuities in our speech are perhaps the most important things to improve on as teachers'.

Another trainee in this category, besides affirming the value of guidance about lesson planning, turned her attention to 'the importance of understanding your students'. Even here, her preoccupation, typical of many novice teachers, with obtaining a tool kit of practical answers to practical problems surfaces in her comments on students:

I believe it is important to be aware of the numbers of students in your class, their cultural backgrounds, gender, whether any students suffer from learning or physical disabilities, and the prior knowledge students possess in the subject. Such [knowledge] will determine the teaching methods which teachers will use in the classroom. For instance, knowing the size of the class is important for teachers so that they are aware of how many copies of handouts to make and how to divide the students evenly for group work. (V.00:013)

Practical issues are not unimportant. Perhaps, then, these examples suggest not only that high levels of apprehensiveness may lock a teacher's focus onto practicalities, but also that professional development for these people should flow outwards from the practical problem they perceive.

#### 4. BORN TEACHERS

In two cases, the persistence of a pre-existing practical theory seems to be linked to the belief that effective teachers possess innate qualities that are important determinants of success. One student wrote:

I believe that all teachers, or potential teachers, have within their character and personality a natural theory or approach to teaching. It could almost be likened to or described as a natural instinct ... Constructing one's personal theory of teaching is for me really an organization of a person's pre-existing ideas. (V.01:122)

Another put it rather awkwardly, but with insight:

The knowledge of how to teach effectively ... comes from a variety of sources. The first of these sources comes from the teacher themselves. A really effective teacher, knows inside what they want and to a certain degree, this feeling inside a teacher has [sic], cannot be taught to them, it is something that has developed inside and is as personal as any emotion.  
(V.00:080)

This trainee seems to be groping toward a realization that the field experience and educational theory he discusses in his next two paragraphs will actually become part of his broader understanding but, for the moment, they provide only 'knowledge of what things work, much of the time, and what things never work', and 'only allow the teacher to make an assessment based on prior knowledge'. Furthermore, he argues that:

... each person will interpret [what has been experienced] and arrange it in their minds differently to everybody else. They will discard what is not meaningful to them straight away and take what is meaningful to them and combine it in their own mind to make their own theory. (V.00:080)

This view of teachers and teaching supports the argument of Handal and Lauvas (1987) that practical theories develop early and shape all subsequent behaviour relevant to the theory. It also illustrates Sotto's (1994) description of the control exerted by schemata over the perception of new ideas.

## 5. DEFENDERS OF THE FAITH

Three papers stand out for their vigorous and cogent defence of established practical theories that were developed successfully in non-school environments.

A former tour director, accustomed to the transient tasks of managing human beings and communicating interesting or useful information to them, finds new and surprising demands in the Graduate Diploma of Education course:

I must not 'talk and chalk' it seems. These students are not tourists flying in this week and out the next. It seems I need to build trust, respect, confidence—shock-horror—a relationship.

(V.01:095)

He is comfortable when 'centre-stage' and seems to understand that teaching is a more profound and complex, longer-term assignment than his previous career, but he still searches for concise direction on what he now must do:

Randomly sorting through the various STIC handouts [not the text book, it might be observed]

I noted the odd pearl here or there, but no one coherent system or approach, certainly nothing gender specific that dealt with the idiosyncrasies of the Venetians [sic] (from the Martian perspective). (V.01:095)

He comments that:

... the course should involve more practical time and far less theory ... The STIC material alone could be condensed down to 10–15 pages, and these lessons taken to heart. Why confuse and overburden, when much theory on teaching itself suggests otherwise, namely clarity.

(V.01:095)

Another trainee has experienced a similar singleness of purpose and clarity of procedures in an earlier occupation. He, too, found the GDE course irksome:

Probably the most significant growth of my teaching skills has occurred during my training as the [sic] Australian Army Officer...After this intensive course [i.e. Module 1A] anything the Graduate Diploma could throw at me would fail to impress. (V.01:068)

It is possible that his military model of instruction is so dominant that the potential of an alternative approach to learning can be obscured. He refers to the student-led workshops, and particularly to the first GDE tutorial of the year in which students were invited to consider descriptions of two contrasting lessons on the same topic. It was intended that the case studies would promote reflective discussion and lead to the identification of issues to be explored during the course. The army officer didn't see it that way:

... in this course, students were left to their own means—a very unfair and distressing prospect. In fact, this course seemed to do one of the basic don'ts I was taught in my Army training—testing students on something they haven't been taught! Certainly, that was the impression I was left with from the first tutorial activity. (V.01:068)

The blocking power of an enduring and successful practical theory is displayed in the writing of yet another GDE student. The context in this instance is not a military one but a decade of tertiary lecturing and demonstrating, coupled with the tutoring of senior secondary students. This memoir is interesting and, at times, disturbing for it launches thoughtful criticisms of activities often taken as best practice:

Bad physics propagates because individual people make errors that are then copied by others who are incapable of critically appraising what is presented them ... Resource sharing also propagates bad science ... It seems that very little professional development in teaching addresses subject expertise, and so teachers are not scrutinized closely (or well developed) in this area. (V.01:018)

Further, he draws attention to the disparity between educational theory espoused in a prospectus and the activities that really dominate classrooms he has seen. Simultaneously, he reinforces the assertion that students bring their own practical theories of learning and teaching to their studies:

Much of the new teaching methodology seems to amount, in practice, to spoon feeding students (although this is not its intention), particularly at private schools. Students are very uneasy about open-ended exercises, and exercises that extend them. They want a high degree of prescription, and in private schools, demand it as education consumers. (V.01:018)

One might be tempted to reallocate his memoir to the Contented Scholars segment above, because of his emphasis on 'two key concepts—subject expertise and respect for the students'. His recognition of, and respect for, individual differences are impressive:

One of the things I have enjoyed about tutoring [senior secondary students] is observing that every student constructs knowledge differently ... Some of the poorer academic students I have encountered are able to intuit concepts that I myself labour over, while some academically brilliant students get blocked on concepts that seem banal ... *nearly all* students display thinking at some time which is profoundly impressive to me.

Nevertheless, with candour and self-knowledge he writes:

My theory of teaching has nothing to say about a middle school class that, trapped in a paradigm of antagonism toward authority, is dedicated to the destruction of the learning



environment! With one class I taught, I concocted a scheme to pump carbon dioxide into the room, so they would just sleep through the session—it was my best solution. They certainly did not respect me for my subject knowledge. I didn't implement that class management solution, I should add. (V.01:018)

This comes from a man who began his paper by offering 'thoughts ... unpolluted by the deep cynicism of educational bureaucracy and nouveau [sic] teaching methodology'. It is unsurprising and, perhaps, comforting to observe that beginning teachers who bring commercial or military expertise to education find it difficult to adjust to a new paradigm for teaching. It is a confronting and worrisome situation, however, when someone experienced in education and who champions values we share with him, turns away from a crisis that begs reflection and self-evaluation. In this last memoir, the conservative power of an established practical theory is confronted.

## **E. MAJOR THEMES EMERGING FROM THIS CHAPTER**

On the first day of their study program, trainee teachers brought from their own schooling and subsequent tertiary study and/or employment an already established, but rarely articulated set of principles for teaching and learning. In many cases, the individual and distinctive practical theory was so naïve or situation specific as to be inadequate for teaching in the secondary school of the twenty-first century. That individual practical theories existed, however, is amply shown in the memoirs.

It is clear, too, that by the end of the year, the practical theory of most students had undergone significant change. The change, itself, seemed to have been a process of learning that led to new knowledge and behaviour. That is to say, existing practical theories—as Handal and Lauvas (1987) had predicted—are not immutable.

The change process is described by trainee teachers as simultaneously involving a number of components that include:

- a. assimilating new knowledge into what is already known;
- b. reconstructing existing knowledge to accommodate novel ideas;
- c. preserving existing knowledge deemed to be relevant and useful.

The ratios of any one of these components to the others vary from individual to individual, giving rise to idiosyncratic pathways to change.

In the memoirs discussed in this chapter, a strong determinant of variation appears to have been the nature and strength of the pre-existing practical theory:

- a. Those, whose earlier experiences of learning and teaching were precursors to the constructivist model presented in STIC, generally reported steady incremental learning. They used terms like growth, evolution, unfolding of understanding, and gradual accumulation of insight. It was only in hindsight that they perceived the extent of changes in their practical theory of teaching. The profile for these people would be high for assimilating and lower for accommodating and preserving. It may be convenient to refer to this group as 'assimilators', but that term would denote the dominant—not the sole—component in their change experience.
- b. For another group of trainee teachers, constructivism was a stern challenge to their existing, usually traditional, practical theory. They wrote about a major mental shift, and indicated a disruptive confrontation with seemingly incompatible ideas. The dominant component of their change experience was accommodation—a radical rearrangement of existing beliefs and practices. The disequilibrium experienced during the process was frequently uncomfortable and threatening, but they were eventually able to emerge from confusion into deep commitment to the new idea. For convenience, these people might be

identified by the dominant component of their change experience and, thus, referred to as 'accommodators'.

- c. To a third group can be allocated all who said they had persisted with a pre-existing practical theory. In one sub-group were those whose pre-existing practical theory was highly compatible with the constructivist emphasis of STIC and therefore were able to preserve that theory with only slight modification. This sub-group might be termed the 'preservers'.

In another sub-group are trainees who did not achieve notable changes to an inappropriate practical theory. They used material that tended to reinforce the existing theory and discarded what was not meaningful to them. In preserving the pre-existing theory, they were sometimes perceived to be hostile to the new idea. There is the possibility, however, that disequilibrium in these cases might have been so intense and the absence of schemata for making sense of the new ideas so severe, that what was perceived as aggression might have been a cover for bewilderment, fear and a sense of failure. Nevertheless, with proper caution, these people might be characterized by their observable behaviour and referred to as the 'resistors'.

It is possible that other change programs might reveal a similar range of responses to pedagogic change. It may also be worth noting that, in the sample described here, 'accommodators' and 'assimilators' each made up between 40% and 45% of participating trainee teachers, while 'preservers' were a mere 1–2%. 'Resistors', however, at about 10% of the sample were a small but potentially influential minority.

While the pre-existing practical theory seems to be one of the strong factors determining the nature of pedagogic change (if any), other influences have been suggested in this chapter. Age, gender and subject specialization may be especially relevant, as people less than 30

years old are a proportionally larger group of 'assimilators' than might have been anticipated. Furthermore, women less than 30 seem to be over-represented amongst the 'accommodators' while men—especially those who teach science and/or mathematics, or are in the 30 to 39 years age group—dominate the 'resistors'.

The content of this chapter provides support for some of the change principles proposed at the end of Chapter Two:

- i. Very few trainee teachers began their program of study with a practical theory that would promote a genuinely student-centred, constructivist approach to learning, or emphasize the acquiring of higher-level thinking processes. These goals would have to be learnt during the program of study.
- ii. The nature and strength of the pre-existing practical theory of teaching were formidable influences on whether a trainee was able to change, and largely determined the pathway to any change that was achieved.
- iii. For some, learning was predominantly assimilative. For others, the more confronting process of accommodation prevailed. For the remainder, change was either unnecessary, or impossible to achieve in the circumstances that prevailed. Change leaders would be well advised to plan a differentiated approach to take account of the range of starting points and learning needs. Three factors—the availability of a potent alternative theory, meaningful contact with actual students, and the capacity to access theory through practical problems—seem likely to have a positive influence.

The factors that trainees reported as promoting or blocking a change in pedagogy are addressed in Chapter Six. Meanwhile, Chapter Five reports the experiences of changing practical theories and collective codes in two secondary schools.

# 5

## Disparities in the Schools

The changes of practical theory described by trainee teachers took place, in a sense, in isolation. In this chapter, attention is directed to two large and typically busy secondary schools where all the normal curricular, co-curricular, pastoral and administrative activities continued unabated, while changes in pedagogy, assessment and reporting were undertaken throughout each school. Moreover, it was not only individual practical theories of teaching, learning, and managing change that were to be revised. As Handal and Lauvas (1987) pointed out, the prevailing collective code of teachers—and, we should add, of students and managers as well—also had to be reshaped if effective school-wide change were to be achieved.

Accordingly, this chapter reports the views and experiences of teachers and students who took part in these innovations. Predictably, each sub-group of school participants presented a distinctive perspective of the change experience. Part A deals with the reports of 18 well-established classroom teachers of English, mathematics and science, while Part B summarizes the views of the heads of those departments in each school. Members of each school's management team, who had been charged with the introduction and implementation of an innovation, together with other staff members entrusted with special responsibilities in a particular project, are the focus for Part C. The perceptions held by students selected from Years Eight, Nine, Ten, Eleven and Twelve in each school are discussed in Part D. In Part E, connections are made between themes emerging in this chapter and the principles proposed at the end of Chapter Two.

## A. CLASSROOM TEACHERS

Five of the teachers in this group specialized in English, six taught mathematics and the remaining seven taught science. Two of the teachers of English were male, as were four of the mathematics teachers and five of the science teachers.

As these classroom-based teachers discussed their experiences of pedagogic innovation, it became possible to discern a pattern similar to that emerging from Chapter Four's much larger sample of trainee teachers. Four of the experienced teachers described a significant and potentially disruptive variation to their existing theory and practice of teaching—the Y category of Chapter Four, now labelled 'accommodators'. Another eight reported the steady development of their practical theory through the accumulation of understanding and expertise—Category D, the 'assimilators'. One was clearly in the N+ ('preserver') category, while the remaining five, whose practices and practical theory seemed largely unchanged amid the innovative activities in the school, fell into the N group, the 'resistors'.

TABLE 4: COMPARISON OF EXPERIENCED TEACHERS AND TRAINEE TEACHERS BY CHANGE CATEGORY.

Change	Gender (M/F)	Classroom Teachers		Trainee Teachers	
		Number	(% of all M/F/M+F)	Number	(% of all M/F/M+F)
Y	M	2	(18.2)	25	(36.8)
	F	2	(28.6)	53	(46.1)
	M+F	4	(22.2)	78	(42.6)
D	M	3	(27.3)	30	(44.1)
	F	5	(71.4)	52	(45.2)
	M+F	8	(44.4)	82	(44.8)
N+	M	1	( 9.1)	—	—
	F	—	—	3	( 2.6)
	M+F	1	( 5.6)	3	( 1.6)
N	M	5	(45.5)	13	(19.1)
	F	—	—	7	( 6.1)
	M+F	5	(27.8)	20	(10.9)
All	M	11	(61.1% of all M+F)	68	(37.2% of all M+F)
	F	7	(38.9% of all M+F)	115	(62.8% of all M+F)

Data displayed in Table 4 suggest that classroom teachers may have described change experiences similar to those reported by trainees, but the distribution of classroom teachers to each category hints at interesting differences. The proportions of experienced and trainee teachers in the 'assimilator' group are comparable, but there seem to be comparatively fewer 'accommodators' and more 'resistors'.

More detailed accounts of the change experiences of classroom teachers follow.

### 1. 'ACCOMMODATORS' REPORTING RADICAL CHANGE

A science teacher presented what might be a classic instance of a change in practical theory. In his earlier years of teaching, his approach to the teaching of scientific classification would have been the traditional one:

I might get four different sets of buttons ... and go through the process of, 'Well, how do you tell the difference between this one and that one?' ... and I might have some scientific apparatus and say, 'Okay, how can you tell the difference between a Bunsen burner and ... a conical glass ... and then we'd get down to the stage of, 'How can we tell the difference between birds and bees and everything else? So it's ... the old traditional style of things—the way in which I would have done it ten years ago ... It basically all came from me ... [the students] would have mainly either been listening to me or answering questions from ... a worksheet. (Transcript 12)

Ten years later, after initiatives to develop student-active, interdisciplinary curriculum units and to emphasize the use of data bases in science as part of a school-wide program to foster information literacy, he would approach the same topic 'very differently':

We combined what we do here with what would happen in the Year Eight camp. The week beforehand, we did a little bit of how you classify, how you can find things, how to conduct a transect—mapping out an area ... and identifying each different animal or plant or whatever

might be there. We did a trial—we ... got a small area and mapped it out, then we went off to [camp] and went bush ... and away they went and mapped out somewhere between a 20 and 50 square metre area, and they wrote down all the information—how many bushes—what type of plants there were—how many, how tall, how healthy—look for signs of animals—could we identify them by the trails or footprints ... and then we entered all this information into an Access database. Data we have collected this year by itself does not mean a lot, but put it together with the following years, we then have got something where students in later years can do a comparison—they can use their database to say what it's like now and what it was like back five years or whatever it may be.

*So what are the key elements of your new approach to the teaching of classification?*

Well it's more real, instead of being artificial and just an exercise for the sake of, 'Well, that's something that's been deemed you need to know, so we'll go ahead and learn it'. It is trying to put it into a real context [where] they can actually use some of the data to produce a report [for the funding body and] so they can see a sense of purpose. (Transcript 12)

When pressed, the science teacher acknowledged that his previous teaching had been focused on the presentation of information and the assessment of recall. His practical theory of learning was 'sit down, listen, be an empty sponge, take it in—if you don't agree, it doesn't really matter, because that's ... what's in the exam, just learn it'. The transition to 'a more holistic approach' was by no means easy. He had left teaching for a career in business and training, but returned five years later 'as a matter of necessity' when his employers decided to relocate overseas. Changes in the secondary school population that previously had been developing unnoticed now struck home:

When ... I came back, I was there with my ideas but things had changed ... I had great difficulty in that first year ... I went back into the way it used to be ... things that I took for granted didn't happen ... I had a Year Nine group where it was, 'Right, okay, everybody turn to page 84' and [the reply was] 'What do we want to do this for? We are just working out of



this book—c'mon, make it more interesting for us'. I was sort of hit with a sledge hammer ... and that opened my eyes as to how kids are different now ... it really did cause a lot of problems and I had to re-evaluate what I was doing quite dramatically. (Transcript 12)

A serious professional and personal crisis, arising from his recognition of an unproductive pedagogy, became the springboard into a thorough renovation of his teaching practice and theory. How he achieved this, and what factors influenced the process, are more appropriately dealt with in Chapter Seven, but we might note once again the presence of a sense of mismatch and distress similar to that identified by trainee teachers as a forerunner of professional growth.

A significant revision of one's role need not be tinged with distress, as can be discerned in the interview with an English/Learning Support teacher. Her role initially involved working with students experiencing difficulties, but a mathematics teacher's comment that 'half of the class understand, the other half are just going to have to rote learn it', articulated her growing concerns about the efficacy of her support for students at risk. As she observed:

There's no learning happening ... if you just rote learn and regurgitate, because you can only regurgitate if it's in the exact format whereby you have learnt it. As soon as there are modifications, then there are going to be real problems because you can't use your learning. (Transcript 3)

Moreover, the realization grew that:

... well, I work with some [students] four or five times a week depending on how often I can see them, but they are in class for twenty five or twenty six lessons a week, so if I am going to be in any way efficient here, everyone needs to be supporting these students. (Transcript 3)

From this, a school-wide focus on inclusive teaching strategies was developed, extensive professional development occurred, and a teacher's manual written to encourage specific

teaching of learning skills. An extension of the scope of the program came about because:

... quickly it became apparent that the ways in which we could support students at risk were appropriate for students of many different levels of needs. (Transcript 3)

Commentators within the school report acceptance of the initiative, widespread use of at least some of the recommended strategies, and a considerably enhanced role for the teacher at the core of the project. Interestingly, the teacher now sees her role as both 'working with children with difficulties' and providing 'teachers with ideas about how we can develop literacy skills [and] expand the way that we teach our students so that [they] have a greater level of success'. (Transcript 3)

The third example, in which a teacher of mathematics describes the impact of graphics calculators on his teaching, illustrates the potential for new technology to reshape pedagogy. In previous generations, much time and effort were expended on learning how to calculate—how to find the maxima and minima of polynomials, how to find the mean or the standard deviation of statistics—whereas now:

... you can input your data into a graphics calculator [and] with a flick of one button it will give you every single result you want ... Many of us old fashioned mathematics teachers cringe at the thought, you know, of suddenly saying, 'Oh, we don't really need to know how to do that anymore, because I just punch it in and there it is' ... then it becomes an interpretation of what those figures actually mean—what is this data really telling us? (Transcript 47)

For this teacher, it was an unfamiliar and challenging experience to be encouraging students to 'think outside the norm', to 'analyze questions', to 'work through to a solution quite independently and with a minimal amount of information'. A firmly consolidated practical theory of teaching that asserted teachers should provide packages of all necessary information

and maintain close control of student activity was clearly opposing a pedagogy that required students to be allowed to become independent thinkers and independent learners:

I mean, some of the teachers, including myself, have had difficulty with that approach in the sense that some of us feel that students should be given more direction ... so it's been difficult for us to adjust to it as a staff ...

The remainder of his sentence was illuminating:

... but once you see it in operation, and you see what the students are getting from that, it's very good. (Transcript 47)

First hand experience of student gains, coupled with a high level of trust in the Head of Mathematics who had been advocating a change in pedagogy 'for a number of years, because he's seen what's going to happen with mathematics', appear to have smoothed this teacher's path towards innovation. Nevertheless, he sums up his experience as both 'difficult and exciting' and 'a challenge but very rewarding'.

The next phase of the interview provided a frank and insightful reflection on the reasons why his colleagues (and perhaps the mathematics teacher himself) had been so strongly challenged by the introduction to graphics calculators:

[Other teachers] initially were very impressed with the work we were doing with students, but they were really staggered at thinking their students were going to be able to handle this sort of work [and] they were not confident enough to handle it themselves ... There's a fear with staff members ... students will be able to handle it—we don't give them enough credit ... they will enjoy the change that's going to occur, but it takes time to develop those skills and it is a different way of thinking and so staff will be uncomfortable ... For years they've been teaching mathematics in a certain way. They've got into a comfort zone, they've got resources ... they have the knowledge, they have the expertise. All of a sudden, they're in an area where they don't necessarily have all the knowledge, don't necessarily have all the expertise. In fact,

you can find students who will be able to work with technology at a higher level than you do. This is a bit scary for all of us ... it's not easy to cope with that change—especially if you've been teaching for a number of years ... This is taking you right out of your comfort zone. It ... challenges your ideals of what teaching is or how you're going to work in your classroom, and ... as I was saying before ... students can actually know more than you, with technology in particular. That can be a little daunting. With mathematics you don't normally—see, this is the point, it's always been the teacher in control, the authority, and suddenly that's been challenged. (Transcript 47)

Each of the three examples dealt with so far has provided valuable insights into the personal experience of successful change. The remaining case, the narrative of an experienced teacher of science, is particularly useful, for while it confirms the centrality of theory revision based on a new perception of student needs, it also announces the fragility of a recently amended, but inadequately consolidated practical theory. Her own schooling experience in a group of 'very high achievers' had been 'very much a lecture program ... [in] big classes—70—so it had to be set about that way' (Transcript 46). She did not carry the pattern of silent, competitive classrooms into her own teaching, for she quickly understood that some students:

... catch on straight away—it's almost as if it's in their foetal memory— whereas others take a time to get it, but then they understand the rest and then they can pursue it ... [these are] the dogged ones who keep pushing and pushing...and it really helps if you can give them the time and the extra opportunity to discuss it. (Transcript 46)

She acknowledged that she had continued to learn throughout her career 'not just about your subject material, but about any of your students and how they learn', but that there had been a 'turning point' when she had attended a conference on applying the principles of constructivist learning to the teaching of science. Despite her own well-established focus on student learning, she shared with other members of the conference a reaction against the new pedagogy:

With so many of us there it was a completely foreign idea, so we had to step back ... We all sort of almost made fun of it, because it was so much in—so contrary to what we'd been thinking. We had a certain mindset, you see. We had to sort of turn it around. (Transcript 46)

Probably the combination of major papers, discussion groups and informal conversations prompted the emergence of a new understanding of teaching. It was:

... not like there was suddenly a bolt of lightning ... I mean, reflection is an important part of constructivism, and the time it takes to make sense. I mean, the seeding comes in language, doesn't it ... and then you sort of get layer upon layer as you mature. (Transcript 46)

Another important influence was her own experience of becoming a learner again as her teaching assignment was altered:

It makes sense to me, now, that you need the constructs in the brain to accept it. I am finding this with myself now, because I am picking up physics which I haven't touched for forty years, even though there are aspects which overlap with chemistry, and it takes me quite a while just to sort of put a pattern in my brain so suddenly everything follows quickly. (Transcript 46)

The science teacher now describes herself as being a 'facilitator' who ensures students have the time, the capacity and the incentive to reflect on their learning. It must be noted, however, that an almost contemporaneous school-wide program of professional development that defined fourteen separate processes for encouraging students' higher level thinking appears not to have been used effectively. The following exchange is interesting, both for the oblique relevance of the answer and for the description of the student project that seems not to have been shaped by the specific guidance offered by *Dimensions of Learning*:

*Have you been able to make use of 'Dimensions of Learning' and, particularly, the complex reasoning processes it advocates?*

Well this is just part of our science teaching anyway, isn't it, with the practical work—using knowledge meaningfully and so forth—yes ... It's always been part of Science, with investigation and doing it in groups anyway. I mean, this is the way the big science groups work anyway, isn't it? Stick their heads together and work there with the problem solving ... We're doing a section in Year Nine on disease, so I got them to pick a disease each and they've got to give a talk and you give them a mark for their presentation and how they hold eye contact and how long they have their little slides up and the amount of information there—they really get enthused by that. We learn a lot about all these diseases. I mean the fact that it's all 'oomy' anyway, they like that part of it—talking about the bubonic plague, they love talking about all those people dying. (Transcript 46)

The disease project incorporates none of the complex reasoning strategies that extend or refine knowledge, nor does it require students to focus, for example, on problem solving (overcoming constraints) or investigation (identifying and resolving issues about which there are confusions or contradictions) as the school's major (and, at the time, six-year-old) professional development program would have recommended. Instead, the Year Nine science students were merely copying and repeating information. It must be asked why such a professional and self-motivated commitment to constructivist learning in science failed to discern the relevance and practical applications of *Dimensions of Learning*.

The four cases in the Y category of experienced teachers sound strong echoes of the change experiences reported by trainees in Chapter Four. The male science teacher seems to have much in common with those trainee teachers for whom confrontation was the spur to change. The same is partially true for both the mathematics teacher and the female science teacher, but the additional factor appears to have been, for the former, the meeting of student needs and, for the latter, the grasping of a new idea. For the English/learning support teacher, the driving force seems to have been her recognition that student needs had been inadequately met. As with trainee teachers, the validity and acceptability of the new theory is seen to be an

important factor; so, too, are the perception of student needs and the persuasive power of a strong professional challenge. Additionally, there is the possibility that sustaining or extending pedagogic innovation may be difficult.

## 2. 'ASSIMILATORS' REPORTING EVOLUTIONARY DEVELOPMENT

Allocated to this category were 3 men and 5 women. One man and 2 women were teachers of English, 2 women taught mathematics, and 2 men and 1 woman were teachers of science. Given that the entire group of experienced teachers contained 11 men and 7 women, it might be observed that women appear to be strongly represented and men clearly under-represented in this category. Also noteworthy is the absence of male mathematics teachers from this category.

As was to be expected, there was a degree of homogeneity in the substance of the eight transcripts reviewed here. All these teachers described their involvement with innovation in terms that were calm and almost commonplace. Words that caught this sense of unremarkable development included '...it's the evolution of learning that has had to take place' (Transcript 38), 'the change of emphasis' (Transcript 11), and 'I sort of had been doing that anyway, and I guess I am just consolidating more than anything' (Transcript 14). As she reflected on her introduction to the innovation at her new school, an English teacher commented:

It didn't actually worry me greatly. There were some bits about which I was unsure, but I found it very compatible with how I was teaching, especially for English—I mean, I don't know about other subjects, but English has been doing that for some time I would have thought. (Transcript 21)

Another English teacher characterized his induction as a kind of rearrangement:

I think most people, myself included, grasped the thrust and the general idea, and certainly, for me, I spent most of my time making connections between that and what I already knew—so,

okay, that's like that, that's like that, so okay ... It allowed me some time to ... express what I knew in terms of *Dimensions of Learning* ... so things like methodologies and that sort of thing—I rearranged them and put them in. (Transcript 22)

A science teacher who referred to her experience as 'expansion' (Transcript 28) went on to say: 'It wasn't a very dramatic thing. It was rather something that sort of came through and it did sort of go hand in hand with the [new laboratories] that we were developing at the same time'.

Of particular interest were the remarks made by a senior, innovative and highly regarded science teacher who, after resolving his initial scepticism about importing an overseas program for pedagogic change, became a firm advocate of it:

It wasn't Mickey Mouse, it wasn't gimmicky, it really was about quite deep thinking processes, and I think at the end of it all ... you tend to say to people: Look, okay, this is fine ...

*Are you saying that you warmed to "Dimensions of Learning" because it embodied principles of learning that were already yours?*

Many of them were. I wouldn't want to say that I came to *Dimensions of Learning* and didn't learn anything—I learnt heaps, right, but there were things in there that resonated, things in there that matched what I wanted to do. (Transcript 17)

The strongest thread that runs through these eight transcripts, as the previous sentence reminds us, is the declaration in each that the change has been an assimilative learning process. The contrast with the earlier Y category is marked. There, teachers faced a major revision of their thinking—accommodation—that might prove to be challenging and hurtful; here in the D category, the transition was steady and often professionally fulfilling.



Aspects of personality appear to be elements of the contrast, too. Prominent in the D category is an ongoing awareness of students as learners and the requirement that teachers respond to the changing circumstances and needs of those students:

I think the way students are approaching learning has changed ... and we, as teachers, need to be aware of that ... Students are certainly more visual learners ... and I don't think that they are able to control as much of their learning as they were in the past, because ... all these other factors ... are playing a role in their lives and detracting from their academic study.

(Transcript 2)

There is also a self-belief:

I'm teaching in a style that's true to who I am, and I think probably if I was forced to stick with the text book, I'd burn out, I'd find it too frustrating, for there is such a lot of mathematics to sort of revel in and delight in and the text book is—it's only just dabbling on the surface.

(Transcript 11)

that manifests itself in an unpretentious assertion of efficacy:

I now have the confidence to believe in what I am doing in the classroom regardless of what other people might say or think (well, within reason of course, you know what I mean by that), and that's come with age and experience. (Transcript 38)

Closely aligned with this confidence is a sense of personal security that accepts accountability measures and allows—perhaps encourages—the devolution of control of learning to students. The English teacher just quoted, reflecting on the introduction of criterion-referenced assessment and reporting, commented:

There are no secrets any more ... it is a shift in power ... the teacher traditionally [was] the filler of empty vessels [whereas] the teacher today is more a facilitator, a guider of learning as opposed to the director of learning in the past. So, it is a big shift in perspective for teachers ... because it makes them more accountable for what they are delivering in the classroom. You

really do have to sit down and think about: 'Why am I setting this task? What do I hope to achieve? Are students aware of what they have to do? How am I going to assess this work?' You have to be more organized and you have to be up front. I am sure that there are still some teachers today who would prefer not to have to be that accountable. (Transcript 38)

Moreover, teachers in the D category seem to have a stronger predisposition towards critical reflection on their own effectiveness:

I think that what you end up doing is operating as the ultimate empiricist—you use the things that work and you ditch those that don't ... Experienced teachers are people who know how to reflect upon what they've done last lesson, last week, last year, and constantly work that over. (Transcript 22)

They also exhibit a tendency to inform their own reflectiveness. Sometimes this is achieved through careful observation of colleagues—'I think that, honestly, from day to day I've learnt a lot by watching good teachers ... and talking to them' (Transcript 11)—and at other times by courses of formal study—in functional grammar and information technology (Transcript 21) or counselling (Transcript 11). Then again, an individual, purpose-driven search of the literature may be initiated to support the transition to unfamiliar challenges in a new appointment (Transcript 26). These people are students of their profession; they display what one of them aptly described as 'professional restlessness' (Transcript 38).

Openness to change, the commitment to keeping in touch with current developments in learning theory, and a focus on student learning combine to make experienced teachers in the D or assimilation category potentially strong allies in pedagogic change. What happens when they are asked to retreat from their understanding of current best practice to a regime they deem to be outmoded or constricting (Transcripts 11, 17, 22 & 28) is a topic for Chapter Seven.

### 3. TEACHERS REPORTING CONSOLIDATION OF PRE-EXISTING VIEWS

There were six teachers in this category.

The first, currently a mathematics teacher but recently transferred from the humanities, was a 'preserver'. He was strongly aligned with the three trainee teachers described in Chapter Four as 'contented scholars'. He had found the process of pedagogic change in the mathematics department 'very easy' because he was actually 'bringing ... ideas and different methodologies' from his experience as a teacher of history and thereby 'breaking ... outside the square of how maths is taught generally' (Transcript 35). While he has experienced no discomfort in transferring appropriate teaching strategies to a new subject area, he acknowledges that some of his colleagues—especially 'pure mathematicians who want to teach only or mainly maths'—found strong challenges in 'things like group work and investigating and ... setting up hypotheses and testing them and then writing conclusions ... and writing twice a week in journals reflecting on what they've learnt'. Activities that he had taken for granted were, for others, a very big deviation from the orderly progress through the textbook that was their routine. Interestingly, he comments on the strength of the practical theories of these people:

They've been sent on courses ... but in the end they're still in their little classroom; they close the door and revert back to—because their belief is that people who write text books know what they are doing and therefore I shall follow them. (Transcript 35)

The remaining five transcripts depict teachers caught up in innovation, but struggling to shake off former practices. They do not fit conveniently into the same categories used in Chapter Four to define the trainee teachers in category N. Indeed, their length of service (the youngest was in his eleventh year of teaching and the oldest a few years from the scheduled retirement age), and the multiple tasks of the school context made their experiences a complex bundle of factors. The interviews offered hints that these five teachers might have been tempted by

professional correctness to at least nod in the direction of the current innovative theory, but any evidence that their practice had been influenced by the innovation was sketchy.

In Transcript 19, a teacher recounts the many roles he has occupied during nearly thirty years in the same school, and points to the energizing effect of new challenges and significant variations of responsibility. He is conscious, too, that his teaching has changed over three decades. Now, he says, he is 'very conscious ... that you've got to try to make your approach relevant to the students in your class'. He describes how 'the introduction of source books has changed English teaching', and points to a shift in the focus of study, too. In his recent treatment of *Brave New World*, for example 'we weren't looking for the sort of close textual analysis ... that might have been the case twenty years ago [but] connections to the scientific movements of the period'. He acknowledges that 'in the last twenty years I've got a lot quieter and only occasionally raise my voice', and that there is less teacher talk in his classrooms, although 'at times when a class is working, I've had twinges of guilt—I should be up in front and doing something'. He believes that his professional journey through the years has been 'made of lots of little increments rather than big revisions of approach' and that:

The biggest change is not so much the change in the classroom as the change in administration and the paperwork and the feeding of the bureaucrats which goes with it, so that I think that's what really cuts into teaching and preparation time in lots of teachers' worlds. (Transcript 19)

Despite all the talk of change, other aspects of the interview lead towards a conclusion that this teacher has not experienced significant change in his practical theory of teaching. He is clear that his 'basic beliefs about the value of learning and ... the civilizing power of knowledge ... are still the same' and asserts 'there is still a role to demonstrate ... a breadth of knowledge and understanding and flexibility of thought which is perhaps more challenging to kids now than just the knowledge of a particular subject area'. There is no indication, however, that the school-wide program of pedagogic revision had any strong impact on his

work in the classroom. On the contrary, as he spoke of his professional journey, he looked back to much earlier influences—'the models [of knowledge and pedagogy] that I grew up with':

There were some of my teachers who were inspirational and in one sense they didn't form my decision to be a teacher—that had been formed far earlier than I saw them—but they shaped my decision about the areas in which I teach. (Transcript 19)

In fact, he is critical of his initial training:

... the most important aspect of our training was ... the teachers I'd had as a boy, rather than anything that was done as part of my teacher training, because I was let loose on the world with ... an absolute maximum of five weeks teaching practice spread over four years. (Transcript 19)

Even postgraduate study seems to have reinforced early influences:

I think the Graduate Diploma was really, really important in that it helped me refocus and not relearn ... there were some things about the project that were new, but lots of it—I suspect one of the reasons it didn't really take off was that so much of it was related to grandma sucking eggs, but it confirmed to grandma that the eggs were worth sucking, and I think it came at a critical time in my career that it provided me a re-justification—a restatement of what I was on about, and it provided a different focus. (Transcript 19)

This is the context in which his concerns that modern novels 'are not easy for Years Eight and Nine to write about', his references to the selection of textbooks as a formative influence on learning—'that wonderful *England in Literature* ... provided a marvellous resource for Year Eleven students ... a big liberator in many ways'—and his silence on *Dimensions of Learning* combine to suggest that this interview should ultimately be categorized as N. It is noteworthy that the professional journey described in Transcript 19 not only illustrates a firmly established and enduring practical theory but also suggests why it took on such resilience. His

own schooling experience was so positive and his teachers so admired as strong role models that he can say:

There are times when—I suppose, romantically—I think ... of being the bearer of a baton that goes back ... to the early twentieth century in that many of the men who taught me were members of staff in the early years of the twentieth century and here I am, in a sense, carrying that heritage into the twenty-first. (Transcript 19)

Then, feeling inadequately equipped by his teacher training to deal with his first teaching appointment, he realized: 'I was lucky in that I had some good models to fall back on in terms of people who had taught me'. Later, when he returned from an overseas appointment, he found himself 'surrounded by a whole lot of people who were my former teachers, but much of what was being taught was still happening in the same ways that it had when I was at school ... some of the text books that were being used were all the ones that I had used'. He was to remain at that school for another thirty years.

Three other transcripts exhibited common approaches to innovation. In each, the teacher seemed not to have been fully engaged by the introductory sessions, leaving him with inadequate knowledge, significant misunderstandings and a constricted perspective. In Transcript 24, for example, the interviewee seems uncertain of the key elements of the concept of middle schooling and the school's Middle Years Program (MYP), and their relevance to his own teaching. He sees the middle school 'probably as much on the pastoral care/behaviour management side of things—I know it is not just that, but in my mind that's how the two sit'. Later, he acknowledges:

I'm not really familiar with [the MYP]. We've had a bit of in-service training and there was a fair bit of course writing, but I wasn't available at the time to be able to do the course writing, so my head's really not into it as much as it probably should be.

*What is involved in Approaches to Learning?*

I'm not sure. It may be the MYP have built it as a top area of knowledge or it may be one of the strands that goes—I'm not sure—I haven't had a lot to do with that side of things at this stage. (Transcript 24)

Another teacher in this sub-group was dismissive of a school-based mathematics syllabus document that, ostensibly, was the outcome of discussion within the mathematics faculty:

We did have some professional development sessions in which we listed various different things we'd like to see done, but the actual—when it came to the formality of the document that was produced, we didn't have the full group together. It was done more individually and a lot of the things were taken from other publications that, perhaps other schools had used.

*That document might contain material transferred from the literature of change and other schools' documents?*

Oh, yes. But I don't think I would disagree with too much really. Being an experienced teacher there's so much paper put out, you tend to, well, you're aware that it's there, and you refer to it, but you have your own style and way you go about things, and I think a lot of it's rethinking the wheel with a different label. (Transcript 34)

Again, in Transcript 48, the same failure to engage fully with the broad thrust of innovation can be seen. An unusual misunderstanding emerged during the interview when the teacher announced: 'I quite frankly refuse to put into tests *Dimensions of Learning* questions'. To explain his stand, the teacher argued:

The groups I've taught for many years ... haven't been the strong groups. If I put *Dimensions of Learning* on a test ... the immediate thing would be, 'What's this got to do with us? ... This is not for us. This is for capable kids, therefore we can't do it.

He appears to think that labelling (or in this case not labelling) the work is important, and misses the opportunity to teach—as *Dimensions of Learning* advocates—the steps in the process that leads all students to successful problem solving. This is probably an instance of

excessive concentration on peripheral details at the expense of understanding the intent of the program. Perhaps this is again a failure of learning.

It may also be significant that each of the three teachers reported in this segment have a restricted view of students' capabilities. In the most recent example, the teacher has accepted or allowed to pass unchallenged the notion that students in the mid to late secondary years are incapable of understanding basic learning theory. In Transcript 34, we are told that students 'don't want to understand, just get the right answer', while Transcript 24 asserts: 'Sometimes I wonder if we [i.e. teachers] take the whole issue of learning too seriously'. Embedded in the practical theories we see at work here are concepts about the capabilities and roles of students, and the powers of teachers, which may prove to be powerful influences on the capacity of individual teachers to implement programs of pedagogic change.

Finally in this section, Transcript 20 provides useful insights into the difficulty faced by teachers in the N category. A mathematics teacher expressed genuine appreciation of the post-graduate-style seminars in which small groups explored more carefully the implications of

*Dimensions of Learning:*

I can still remember how worthwhile it was when we had those workshops where we met—you put yourself in a workshop and you met four or five times. Essentially, we did homework for that workshop because [the group leader] instructed that you were going to present this, you were going to present that, and it gave me, at least, a chance to really have a look at that program. (Transcript 20)

He valued at least some of the content of the *Dimensions of Learning* program:

You know, one thing I did get out of that program was the understanding of declarative and procedural knowledge. I think perhaps I always knew it was different, but I don't think I'd ever really espoused to the kids how different it was. (Transcript 20)



When, however, he was asked if he had taught his students the three steps necessary for acquiring procedural knowledge and the three for acquiring declarative knowledge—perhaps, the most basic information for Dimension Two—he replied:

No. Perhaps I've never taken it that far, and that may get back to why haven't I ever taken it that far and, yeah, maybe—well not maybe, I'm not deep enough into really understanding, for whatever reason, *Dimensions of Learning*. (Transcript 20)

He went on reflectively, trying to articulate (for the first time, probably) the connection between his own learning strategies and the way he taught. His pre-service education had prepared him mainly to teach physical education, with mathematics being subsidiary:

I am PE trained ... so I am very much into understanding that any PE skill or sporting skill is procedural, and I think that's—well, I was reasonably good at PE myself and sport, and maybe that's why I'm pretty good at maths as well, because I am able to learn a set list of procedures and memorize them, and a lot of mathematics is like that, and perhaps rightly or wrongly I haven't said to the kids, because most of the maths is like that, there will be some times when it will be different and it will be more like some of your other subjects—more like geography where you need to know all these definitions ... (Transcript 20)

It seems likely that much of his initial professional training, coupled with the model of his own schooling and reinforced by a decade of successful teaching, had led him to the understanding that mathematical procedures could be satisfactorily learnt as a series of simple steps to be practised until competence was reached. As the mathematics teacher in the accommodation category (Transcript 47) has made clear, however, such a view of mathematics teaching was rapidly becoming obsolete. Nevertheless, the teacher reported in Transcript 20 had not yet confronted the shift to meaningful learning, nor had he grasped the full import of *Dimensions of Learning*. He senses the relevance of the innovation towards which he is favourably inclined, and he indicates respect for the judgement of the change

leader but, as yet, his understanding is too inaccurate and superficial to permit engagement with the innovation. He reports being harassed by multiple claims on his professional life. He is not an elderly person coasting towards retirement. He is regarded as a conscientious, energetic and professional teacher. He faced the complex and demanding process of re-learning his professional skills; the realization that this has not been achieved generates the tone of rather wistful disappointment characteristic of this interview. It is probable that the implementation strategy of the school failed him.

## **B. HEADS OF DEPARTMENT**

Interviews were provided by the Heads of English, mathematics and science respectively from both schools involved in this study. This section focuses on two aspects of these six transcripts: the personal reaction of each faculty leader to the innovation, and his or her understanding of the faculty leader's responsibilities for, and strategies to be employed in, the implementation process—in other words, his or her practical theory for the management of change.

At the outset, it should be acknowledged that these interviews brought into tight focus the dual strands within each school's innovation. Both projects had started with an emphasis on teaching principles for quality student learning. Subsequently, both projects had adopted an administrative template that seemed highly compatible with the desired emphasis on student learning, but also stressed detailed curriculum writing, criterion-based assessment, careful record keeping, and uniform reporting against published criteria.

Heads of department represented a diversity of opinion in these two areas. One welcomed both aspects of the innovation warmly. From her experience in another school, she was convinced that middle schooling met important needs for students in Years Six to Nine, and seems to have been an advocate and encourager:

I'd worked in a Middle School before ... They were located geographically along the corridors so that you came from the primary section to the Middle School, but more importantly ... you thought Middle School, not Years Six and Seven and then Years Eight and Nine ... I think now we are really starting to become what I call a Middle School. I've kept saying we're not a Middle School yet. (Transcript 32)

It was her view that the IBO's Middle Years Program provided the structure for change:

People had to start thinking, 'What are we doing in Six and Seven and how does that impinge on Eight and Nine? What practices have we got in Six and Seven that Year Eight students, at least, would benefit from?' That is, say, having a teacher for more than one subject, which is real Middle School thinking. (Transcript 32)

Another faculty leader was generally supportive of the school's pedagogic guidelines prepared by the Head of the Middle School:

I believe in a lot of the things he wrote, because they're educationally sound and represent a necessary change.

*So, you personally think that is the way to go?*

I think moving towards some of these things is the way to go. I don't think all are desirable. I think you need a degree of rote learning in Maths. (Transcript 36)

In another three interviews there was an even stronger sense of ambivalence. In Transcript 45, for example, the pedagogic initiative was seen as highly compatible with a pre-existing interest in a new approach to learning and teaching:

*Which of the recent changes have had the greatest impact on classroom teaching?*

I suppose, in all honesty, it was the *Dimensions of Learning* program, but I think we had a bit of a kick start because we were into a constructivist approach to science anyway, and [two science teachers] were investigating that ... That of course was consolidated when the

approach was formalized into the structure of the school's professional development.

(Transcript 45)

The interdisciplinary units of the MYP were accepted just as readily: 'We're a major contributor in Year Eight this year. We're the driving force in the *Our World* concept, looking at the influence we have on our immediate surroundings and wider'. There were, however, some concerns:

Where we've found [the MYP] impinging on us was when that work became assessment driven ... A lot of us didn't realize that until after the event. Sometimes, you know, you don't realize where you're going until you've got there. When we settled back and reflected on what we'd done and reviewed how we would do it next time, we said, 'Hang on. We didn't cover what we wanted to cover, because we were more concerned about assessment as opposed to the mode of delivery and the response we were trying to get from the kids. That sounded some alarm bells for the faculty. (Transcript 45)

In addition, in Transcript 18 the restrictions of an external administrative framework are clearly shown to be in conflict with the student-sensitive and successful middle school approach already fostered by the head of department:

Because we're obliged to do one minor and two major courses, we have to do them at a certain time, and for roughly a certain time length, so you have no flexibility in negotiating with your class ... Sometimes, you feel you are over the class and you say I'll do that in Third Term, because they're not ready for it now. With the MYP you're tied down to doing certain things around the [outdoor education] week or ... in the first half term. Sometimes ... you have to go beyond your allotted time because you're obliged to have something of publishable quality. Normally you might decide, 'I've gone as far as I want to go on that assignment ... These kids aren't ready. We'll do it later in the term' ... We've lost the flexibility and people are finding the pressure. (Transcript 18)

There is no sign of rejection of the pedagogic thrust of the MYP—indeed, it is seen to have 'caused us to sharpen up some pedagogic practices'—but there is a determination to 'fight against [the assessment practice] which we'll be obliged to adopt quite soon' because 'it only assesses writing' and not speaking, listening and viewing skills and media studies that are given 'in this state ... almost equal importance'. Another head of department, whose views will be reported much more fully in Chapter Seven, put the dichotomy bluntly: 'No-one would say the IB has not got some good points. It's got some shocking points, too, terrible!'

(Transcript 25)

There is no sense of ambivalence in Transcript 29. Here, the head of department has a fundamental objection to what he perceives to be an unwise prescription of goals and methodology for his faculty:

I think [the change leader] either didn't articulate his meaning as clearly as he should have, or he did in fact mean we were going to go almost solely process-based learning. There's a lot of people, including myself, who feel that's—that don't want to go the whole way. I think there's a body of knowledge that it's important to know. It's not enough for them to learn how to research if, at the end of the day, they don't actually know anything other than how to research the next thing about which they'll know nothing the following day.

An observer might note immediately the clash of practical theories revealed here and perhaps the misunderstanding that still seems—some four years after the project began—not to have been resolved through consultation and discussion.

In summary, then, five of the six heads of department appeared to be favourably disposed to at least some aspects of the pedagogic initiative in their school. On the other hand, five of them had significant reservations about the administrative impact both on their existing programs and on the pedagogic priorities of the innovation that they were expected to lead within their subject area.

If it was diversity that typified the level of commitment of heads of department to the innovation, there was stronger consensus in the way they viewed their own role within that innovation. They understood, for example, the nature of their task. They knew that pedagogic change required a change of thinking (Transcript 32), that encounters with fresh ideas brought changes in practice (Transcript 18), that change was something you had to 'get your head around' (Transcript 36), that change was 'a state of mind' (Transcript 45), a 'long, gradual process' (Transcript 29), a 'journey' (Transcript 25). No one actually used the word 'learning', preferring to speak of development or in-service, although one did refer to the need 'to re-educate students and parents' (Transcript 32). Clearly, however, they had a tacit understanding that the required changes in practical theories would be achieved by educational processes.

Similarly, they perceived that their role demanded several potentially contradictory priorities. As leaders of small, closely-knit teams, they had to 'manage human relations' (Transcript 45), 'hold hands' (Transcript 32), mentor, encourage and persuade, while choosing the right moments to 'force' the issue (Transcripts 29 & 36), to 'confront' (Transcript 32) or to 'drive' (Transcript 25).

There was some disagreement about the necessity for teachers to comprehend the learning theory they were about to implement. The heads of English in the two schools preferred their colleagues to be aware of both the local and the bigger scenes that provided context for the innovation (Transcript 18) or to see what benefits would emerge from the project (Transcript 32), but looked for tight links with actual teaching tasks. As one put it: 'We had too much talking at first and no action ... We kept being told, and looking at rubrics, and kept looking at this and that. We weren't doing it' (Transcript 32). They preferred new practices to be acquired through early immersion in real needs and actual tasks. Other heads of department suggested that acceptance and understanding, rather than preceding or accompanying implementation, were more likely to follow and be informed by experience:

The faculty ... are starting to ... use some of the tasks we've written up. I think they're starting to see the value in it. I think the best way of getting the majority of the faculty to be happy with what we're doing is to have them use the tasks and find out that they do work. (Transcript 36)

Much more controversial is the assertion that teachers are reluctant to change and perhaps uninterested in understanding new learning theory at all, and are content to present units of work in a mechanical fashion:

I guess the other trick is that you don't treat the theory as theory. You understand the theory as the leader, and ultimately you'd love them all to understand it, too, but they're not going to, so don't even think about trying that. You digest [the theory] and put it in a form so that they understand that it's a bit of work for kids to do, and then put it in front of them. And they will start to understand the theory through the work. If they then desire to get more theoretical themselves, they can if they want to, but they won't because they don't have the time or desire ... We're kidding ourselves if we think we've got a group of teachers in here who are hungry for intellectual growth. (Transcript 25)

There was also the view that the adoption of a new pedagogy might involve more than development; there was the potential for traumatic experience:

I think it boils down to people. In order to make a really big turn in your teaching (if that's what is needed for you), it's quite a big, quite a threatening decision in a way, because to make a big U-turn, you basically have to say what I'm doing is wrong—the way I've been teaching isn't right—and all my teaching resources now need to be adapted to use in a different way or just thrown out! (Transcript 29)

Another head of department suggested that experienced and successful teachers might be especially prone to resisting challenges to their competence, because:

... you're asking them to throw out what they know and know they're good at, and take on something else that they really haven't got faith in. Why do I need to do this? How is this going to benefit the students' education? This is ridiculous! We've done it all before! And if something works and you're having success with it, why would you stop using it? (Transcript 32)

Heads of department anticipated some resistance to new methodologies because they had encountered it in previous initiatives. They were agreed that they had to work very closely with their team and, in special circumstances, with individual members of it (Transcripts 25 & 45) to promote understanding, model the new practices, share ideas, and encourage or persuade or, ultimately, insist on participation. The writing of new units of work was the pre-eminent focus for professional development, but even here there were different tactics. The majority opted for collegiality and sharing of resources, but two transcripts describe the work being left almost solely to the head of department. This may have arisen in one instance from teachers' hesitation over attempting an unfamiliar task in a semi-public arena (Transcript 36). In Transcript 25, however, the head of department, with a hint of exasperation—'You know, in four years here, rarely has there been a piece of work produced by someone else that I would use'—reported his decision to do the curriculum writing himself and present it to his colleagues. He argued that he alone had advanced far enough into pedagogic change, and had sufficiently experienced student responses to different approaches, to write an adequate unit of work. Moreover, he recognized that he was the person best placed to work through the changes with individual teachers:

They really need the time to process what it is you are wanting them to develop ... That's the difficulty—the time to process that [change] is amazingly intense. I still amaze myself that I go into a class and I come out saying I've never taught that [topic] in that way before ... And I go, 'Where did that come from?' Then I sit down and think about how it works. And then I can write a document ... that I want the other teachers to do. But I've travelled the journey ... I



don't expect the whole of the faculty to take the journey with me. If you think of it as a long road, the best we can expect is for them to come in off some side roads at different points. I've been four-wheel drive, if you like, and written the bumf, broken the axles and such like. Then they come in, grab onto the coat tails and take over. That's what my aim is, but I don't believe I can bring them along that road. I used to think so—but not now. (Transcript 25)

Such an approach would be unacceptable to another head of department:

It wouldn't work if we all had our arms twisted behind our back. Nobody will ever really teach successfully from somebody else's program.

*So writing course units and distributing them doesn't get anywhere?*

No ... I tried to follow a very successful unit that someone else had taught. I saw her do it, and it was fantastic, and I thought I'll do that. I have followed it step by step, but it's never the same, because I don't really know what that person was thinking, and saying, and inspiring others to think.

*You hadn't been through the reflection and the revision of your own ideas that your colleague had known?*

No, because you're following their recipe and it's not the same. (Transcript 32)

It should be observed that Transcript 25 reflects a subject department in which well-established and very successful teachers (as measured by Year Twelve results) were beginning to respond to the call for innovative constructivist approaches to student learning. Several of these teachers—particularly those not available for interview, but depicted in chance comments from their peers, head of department or a change leader as resistant to change—would probably be associated with the N Category; that is to say, they would experience considerable difficulty in revising their teaching methodology. On the other hand, Transcript 32 reflects a subject department already attuned to student-focused learning and with teachers already coded as D, that is, experiencing a steady accumulation of

understanding and expertise in the face of innovation. The context and the personalities involved appear to be highly influential factors in determining appropriate strategies.

To conclude this section, two significant factors should be placed on record.

First—while participating with all other members of staff in the introductory phases of both strands of their respective innovations, and being able to discuss proposals in their curriculum committees—none of these six heads of department reported a direct, intimate and influential role in the actual decision making process.

Second, there was no evidence that heads of department were invited at an early stage to discuss their role in the innovations, to formulate a common strategy, and to develop support structures for themselves.

### **C. CHANGE LEADERS**

In addition to heads of department, there were two other levels of management involved in the change initiatives discussed in this thesis. On one hand, there were four senior members of the schools' management teams who had been influential in introducing one or more of the proposals for change and in shaping the decision making that led to their adoption. To the other five had been deputed the task of managing some aspect of a change process, thus conferring a formal but in some cases limited authority within the management structure. In contrast to heads of department, theirs was the broader focus on professional development themes rather than the detailed workings of a subject department. At both levels, the focus in this part of the chapter is on the practical theory of change management held by these managers who were crucial to the success of the innovation.

All change leaders were committed to successful implementation of their particular innovation. All transcripts of interviews with these people stated or implied that their major

goal was the genuine improvement of student learning. All understood that the change they were advocating required teachers to think differently. There were, however, variations in their anticipations of what that change would demand of teachers.

One view was that there would be a refinement of existing practices (Transcript 39) or a reworking of existing curriculum units (Transcript 16), while another considered that teachers would be learners of new skills:

I really believe it is fundamental as a manager to see teachers as students ... there are variations within the [group], there are different starting points, there are different paces at which you will learn ... As long as the teacher is moving, I am happy. (Transcript 4)

Apparently, these managers anticipated, in most cases, a seamless and comparatively comfortable adoption of a pedagogy that itself was merely an extension of what prevailed at the time. Perhaps this attitude mirrored their own assimilative experience of pedagogic development. One, whose enthusiastic advocacy of student learning was widely acknowledged by colleagues, told how *Dimensions of Learning* had sharpened her understanding of pastoral care. Incidentally, she depicted with insight the assimilation category of change, and also pinpointed the function of a new theory as both the spur for and the vocabulary of innovation:

One comment you made earlier I find interesting, too: people carry around with them a theory of what teaching is about. Do a lot of people actually have it at the conscious level? Is it something that's deep inside you?

*Probably it's deeply embedded and seldom articulated.*

Well then, isn't that a good place to start? Getting people to articulate what they're trying to do and why they're trying to do it? By using *Dimensions of Learning*, there's your language. I mean, that's what clarified my own thinking. I don't think anyone would question my passion

in the classroom for trying to help my students, but I don't know, if someone had asked me ten years ago, 'Well, what are you trying to do?' I'd have waffled around thinking, 'Well. O, gosh!' ... I can think of an overpowering motivation when I went into any classroom was to have my kids want to be there, and to feel they were safe there. This was Dimension One but I didn't know it then. (Transcript 39)

The other view acknowledged that changing pedagogy might involve a more profound experience than a steady assimilation of new ideas. This group of managers spoke of instances that required a different mind set when writing curriculum 'units' as distinct from 'chapters' (Transcript 1), or of 'things ... as different from the way some people are running their classrooms as a "Dimensionized" classroom is from a "pre-Dimensionized" classroom' (Transcript 8). The anticipated change process might be described in terms of reflection, creativity and thoughtful reconstruction of practice in response to new principles—a sort of mild-mannered Category Y. Further, the responsibilities for this group were largely seen as leading the philosophical inquiry into the proposed innovation (Transcript 4), winning commitment to it (Transcripts 4 and 10), and in some cases meeting small groups of colleagues for clarification of the theory and exploration of how it might be applied to specific subject areas (Transcripts 1, 10, 16 and 39). All these activities remain at least one step removed from the tough practicalities of converting ideas into actual learning activities in the classroom—this task was specifically attributed to heads of department in three instances (Transcripts 8, 16 and 39).

When resistance was encountered—as inevitably it was in each of the change initiatives—the reaction of change leaders might have been the patient (and, perhaps, unwittingly accurate) comment:

I need the teachers to go on that journey [towards a better education] but their journey is a longer one, because I am talking about fundamental changes in some cases. So to

accommodate that, we are going to need to give them the time so that they are in a position to take those nervous steps when they have to, which will be confidently, I hope—but I am never in a hurry. (Transcript 4)

or the calm professional confidence of:

I'd walk into a classroom and I'd see frameworks and concept maps on the board, which made me think that people were bringing about change because they honestly could see it was going to work. I suppose that's what it comes down to. We talk as though we have to force people: 'We have to do this; it will help'. They actually looked at it and said, 'Yeah, this is going to work, anyway', and didn't need to be dragged kicking and screaming to the inclusive [teaching] arena. (Transcript 10)

The teachers interviewed for these last two transcripts changed roles before the innovations were complete; one was promoted to another school and the other found her project displaced by a new one. After this cautionary note, it should be recorded that those still immersed in the change program tended to react to resistance with exasperation, sometimes expressed with more than a hint of plain speaking:

In actual fact, as I recall it, we had a very clear process of involvement and decision making, but I think people have short memories. What happens then is a program becomes identified with a person. In this case it's me, and I have to do a lot of talking when people say, 'O, you and your MYP!' and I have to keep saying, 'Wait a minute. It's not my MYP. It's *our* MYP or *their* MYP. (Transcript 37)

Another comment was made with even stronger overtones of disappointment and cynicism:

I think, in our obsession with being very democratic about everything and giving people autonomy and trusting their professionalism and all those lovely little expressions we use, we forget that people have an obligation to fulfil curriculum needs and we in fact have staff

who—well, I'll probably be very naughty and give you an example [which followed for the next page or so]. (Transcript 39)

Almost certainly, that kind of disappointment prompted the insistence—shared by interviewees reported in Transcripts 4, 7, 8, 37 and 39—that certain aspects of the innovations be declared compulsory ('non-negotiable' was the term they preferred) and that structures based either on a school-wide appraisal scheme or an enhanced role for heads of department be implemented to combat the failure of some staff to fulfil school policies. Furthermore, value was seen in adopting structural changes that would introduce external obligations (such as the requirements for acceptance into the International Baccalaureate Organization) and the consequent accountability measures deemed necessary for a very large organization.

All leaders of change—whether members of the school's major management committee or not, and whether they anticipated comfortable assimilation or a reasonably gentle accommodation—were brought to the recognition that their change project had not been universally successful. Indeed, with variations amongst the several projects in each school, the outcomes were patchy, with some notable successes to counterbalance the disappointments.

It is important to observe that leaders of change had no opportunity to discuss the complex nature of the change process itself, nor had they developed agreed strategies or processes for change, or support systems for themselves, or liaison pathways with their companions in innovation—the heads of department.

## D. STUDENTS

This section reports what students said about their understanding of the learning process and their involvement in the school's innovation.

In total, ten interviews were conducted with randomly selected students from each year and house group in both schools taking part in this study. Despite careful communication and reminders published in the school's news bulletin for the day, some students who had completed the process of returning a parents' permission form did not reach the well advertised venue for the lunch-time meeting. Average attendance was a disappointing 55%. While this prompts more than the usual caution in drawing any conclusions, the smaller groups enabled a smoother development of rapport and probably led to a less inhibited conversation.

Discussions of learning addressed the roles both of teachers and of students. There was consensus that teachers should 'give us knowledge' (Transcript 15), 'pass on their knowledge [and] give us an education' (Transcript 27), 'give us information' (Transcript 44), and 'control the class' (Transcript 15). The role of students was clear, too: they must 'attend classes ... listen ... want to learn' (Transcript 27), 'put effort in ... pay attention ... understand ... ask for help' (Transcript 15), 'remember information and write it in the test' (Transcript 31), 'write notes about what we're told ... [and] do examples and tests' (Transcript 44). This last comment came from a Year Nine student who had realized that 'we learn the way we are taught to learn'.

Senior students described the lesson typical of their five years in secondary school:

S. 2: You just go to the class and the teacher goes through the book and you write down what she's said. [*A good way to learn?*] Sometimes. It used to be because you've got to go through content. A lot of teachers are like that.

S. 3: In subjects like maths you basically go through it in class and go off and do the practice problems to find out if you understand it and know how to apply it ... in your own time.

(Transcript 13)

Younger students told the same story:

*What is the most frequent activity in the classroom?*

S. 1: Writing in your book. Copying from the board.

S. 3: Listening to the teacher.

*How do you gain information most frequently?*

S. 2: The book. The text book. Or the teacher tells you. (Transcript 33)

Perhaps a Year Ten student summed up the dominant student theory of learning when he declared it was best to 'sit and let things happen' (Transcript 42).

Nevertheless, acquiescence to a traditional view of teaching and learning was not complete.

Rumblings of discontent were detected in Year Eight groups for whom the pedagogy of primary education was a more recent memory. One student observed that his secondary experience provided less time and less individual assistance for his learning:

Back at the old school ... we were doing stuff—like we were studying it for longer, so you got used to it a bit more. Like the fractions—we would have done that for longer than we're doing it right now. I got used to that a bit more so I was pretty good at that ... but algebra and stuff, we hardly did any of that and we get a fair bit of that in Year Eight. I just don't seem to understand most of it—it's really difficult.

*Is teaching different in Year Eight?*

Sort of. I mean, you've got more people in these Year Eight classes so they can't single you out and help you, unless you actually go up and ask for it sometimes.

*How many in your Year Seven class?*



Twenty-three or twenty-four.

*How many in Year Eight?*

Twenty-seven or twenty-eight. So, it's not a big difference, but it's still a difference.

(Transcript 43)

One inevitably suspects that a shared code rather than four additional students is the factor shaping learning in this student's classrooms. It may be relevant to note that his peers in the other school complained of too much sitting and too much writing (Transcript 33). Students at both schools looked for teachers who could explain well, offer plenty of support and show them how to learn (Transcript 43), and promote active learning that was 'more fun' (Transcript 33). Senior students had come to realize the importance of teaching that helped them 'understand as well as know' (Transcript 13). They valued teachers who could boost motivation through varied approaches and accommodate late developers (Transcript 40), and who encouraged mature interaction between teachers and students (Transcript 42).

Students develop insights into learning and teaching that seem rarely to be acknowledged.

During the interviews, an attempt was made to ascertain whether students involved in innovation had been kept fully informed about the project and drawn as full partners into the new approach to their learning. The answer to both questions in both schools was an unarguable negative.

It is possible that students from the school adopting *Dimensions of Learning* were more alert to pedagogic matters—certainly, these were the interviews that mentioned understanding as crucial to new learning (Transcript 13), and a variety of approaches as central to catering for diverse learning styles (Transcript 40). Additionally, there is a faint undercurrent in the conversations, particularly in Transcript 44, of the concepts and vocabulary of *Dimensions of Learning*:

You make *links* between—they'll, I suppose, give you an algebra equation and you've got to make the *link between that and the basic learning*. So, I suppose, instead of having a long drawn-out formula to do something, you can use a quicker one that will work for everything. And you *extend* everything and make links between it. (My emphasis)

Despite these hints of the subliminal influence of the second and third of the *Dimensions of Learning*, it has to be acknowledged that attempts to elicit detailed understanding drew embarrassed silences, and indeed an inability to even name the dimensions. The scorecard for this school would have to read: No Idea: 1 (the Year Eight group) vs Very Fuzzy: 4.

In the other school, the score for understanding the innovation might be: A Vague Idea: 1 (the Year Twelve group) vs No Idea: 4. Year Eight students, now in the third year of their Middle Years Program, were surprised to hear that the IBO was an international organization:

*The International Baccalaureate Organization is worldwide. You are part of a network that spans the world and not just this city. Does that come as a surprise?*

All: (An animated chorus) Yeah. Yup. Yes.

*What do you know about the IBO?*

S. 1: Didn't we get a big thick folder of information?

S. 3: Yeah.

S. 2: Yeah, we did.

S. 3: Yeah, we had information, but it was too big.

(Laughter)

*So you didn't read it?*

All: No.

S. 3: Wasn't it for our parents?

S. 1 & S. 2: Yeah.

*But isn't it about your learning?*

S. 3: They can tell us.

*Is the folder still available at home?*

S. 3: I think so, ...

S. 2: Somewhere.

S. 3: ... somewhere.

*Perhaps you could read it sometime.*

S. 1: I read the first page. (Transcript 33)

A little later, the conversation turned to the Middle Years Program:

*What do you know about the MYP?*

S. 2: They give a points system, 1 to 7. That's all.

S. 1: When you get a project there's all like criterias.

S. 3: Yeah, and it tells you how to get a B and C.

*What are criteria?*

S. 3: Something that, when you do your work, you need to meet up to, something you need to complete to sort of get assessed on. To get a high mark or low mark depends on what you've done for the criteria. (Transcript 33)

This is a commendable effort on the part of Year Eight students to catch the essence of a reasonably sophisticated approach to assessment, and their confusion between the 1–7 and A–F scales echoes the misunderstandings of some teachers. It is what they did not mention—the attempts to meet their pastoral and pedagogic needs, the centrality of Approaches to Learning, the focus on the environment, and the Homo Faber component, for example—that shows how slight their grasp of the Middle Years Program is. Similarly, for other year groups at this school, there are no indications that initiatives in middle school pedagogy or inclusive teaching were made explicit to students. When they meet them, they recognize some of the inclusive teaching strategies, such as the six box framework for planning essays, but seem unaware of the role of students in applying the principles of the middle school template. In this respect, they are like their peers in the other school, who may have a few blurred

recollections of *Dimensions of Learning* but, in general, are unwitting participants in a change of pedagogy.

Students, themselves, explain this situation in a variety of ways. Some suggest that they were not interested at the time (Transcript 15) or that students' interests are directed away from macro issues to those that impinge most directly and/or forcibly on their immediate concerns, such as the tuck shop or the Year Twelve Common Room (Transcript 40). It seems clear, however, that they are seldom taken into teachers' confidence (except by a few enthusiasts) and that the patchy nature of communication and implementation persuades students that the innovation has no relevance for them. While discussing *Dimensions of Learning*, Year Twelve students put it this way:

S.4: All I know about it, it was some five-step thing. We were told about it by some teachers in the first few weeks when it was brought in, but since then we haven't heard a thing about it. You're not really conscious they're using it at the school.

S. 6: Occasionally you see a poster about it.

S. 3: It hasn't been much really. It hasn't been enforced in the classroom. Basically, I learnt about it in the Outdoor and Transition Education Week in Year Ten.

S. 5: To be perfectly honest, I'd forgotten about it. It's just not really applied in the classroom ... Maybe they are applying it, but there's certainly not much talk about it around the school.

S. 1: I was just thinking ... *Dimensions of Learning* was something that I hadn't heard about since my first few days in Year Eight. And when I'd come to the school previously when I was in Year Seven, and we were sitting around in the Assembly Hall, people were telling us this is *Dimensions of Learning*. It was almost as if it was a direct explanation to parents, which kind of seemed like it was more advertising the school, like this is our plan, but I don't think the students have ever had any really direct contact. (Transcript 13)

Perhaps, this is one of those rare occasions when the last word is left to the students!

## E. MAJOR THEMES EMERGING FROM THIS CHAPTER

Four groups within each of two secondary schools have provided the information reported in this chapter. It is significant that—five or more years into pedagogic innovation in each school—important differences are still evident within and between the groups.

*Classroom teachers:* When experienced classroom teachers encountered the pedagogic changes discussed in this study, they did so at a time when their original, naïve practical theories had already been shaped by pre-service education and consolidated through years of successful teaching. Nevertheless, as for the trainees described in Chapter Four, adjusting to a change of pedagogy required that they learn new principles and practices. Like the trainees, they exhibited a diversity of responses to the learning challenges—in their ranks, too, were 'accommodators', 'assimilators', 'preservers' and 'resistors'—but there seem to have been fewer 'accommodators' and a higher proportion of 'resistors'. Furthermore, pending closer examination in another study, there is the suspicion that women are more likely to be 'assimilators' than men, and that teachers of mathematics and science (mainly men) might be over-represented among the 'accommodators' and 'resistors'. Again, it has been noted that individual teachers might, for example, be 'assimilators' for one innovation, but 'resistors' for another.

The strong implication for the planning of an innovation, therefore, is that no single approach to pedagogic change will meet the needs of all participants, and that provision should be made for a variety of starting points and modes of travel on the learning journey.

*Heads of department:* The influence of heads of subject departments may be the most crucial, yet least understood, factor in successful pedagogic innovation. This study, however, reports marked variations in the level of commitment of heads of department to the innovations in their school. With attitudes ranging (with some justification, it might be noted)

from enthusiasm, through dutiful compliance, to angry rejection of one or more initiatives, heads of department hardly constituted a source of energy and confidence. Moreover, they appear to have had insufficient input to early deliberations or to plans for implementation.

Their practical theory for managing change included the expectation that teachers would have to learn new skills, that such an enterprise would be challenging, that it would best occur through a consideration of how to teach revised units, and that the example and encouragement of the head of department would be important. Heads of department understood, too, that they were best placed to confront colleagues who revealed misunderstandings or appeared to be recalcitrant, but they welcomed any structural provision that might clarify their authority in such circumstances. They differed from one another, however, over teachers' need to understand the new pedagogic theory before they could apply it in class. They selected, therefore, different pathways for rewriting curriculum units, some promoting collegial (but not necessarily well-informed) effort, others choosing to do most of the writing tasks themselves—at considerable personal cost.

In neither school does there appear to have been a deliberate move to gather heads of department into *their* proximate group to discuss the principles and strategies for a unified approach to pedagogic change across the subject departments. In particular, there seems to have been little discussion of teachers' predictable reactions to change, the possible explanations for those reactions, and potentially useful strategies for dealing with them.

***Change leaders:*** Those who became leaders of pedagogic change described their responsibilities as fostering discussions of educational philosophy, winning commitment to new approaches, clarifying theory when necessary and exploring principles for applying theory to practice. As leaders, but not as teachers in their own classrooms, they were one step removed from the task of rewriting curriculum units, the management of which they readily left for heads of department. For the most part, they were 'assimilators', 'preservers', or the

mildest 'accommodators', and almost certainly saw their role through the prism of their own reasonably comfortable experiences of pedagogic change. In one or two cases, they met resistance with patience and the confidence that good ideas would prevail. More frequently, the reaction was exasperation that led to tense interactions and the growing belief that structural changes and accountability measures were essential if the proper implementation of a new pedagogy were to be achieved. In this respect, change leaders and heads of department agreed on the need for structural support for their work.

Again, it has to be said that influential agents of change—the change leaders—had not spent time exploring the nature of change itself, nor had they developed an understanding of human responses to change or shared strategies for dealing with them. Furthermore, interaction with heads of department at the level of change management seems to have been sporadic and uncoordinated.

*Students:* It is a simple task to summarize students' involvement in change. They exhibited scant knowledge of the innovations. While their learning was, allegedly, central to what was happening in their school, their part in the introduction, implementation and consolidation processes appears to have been peripheral, at best.

In terms of the change principles proposed at the end of Chapter Two, this chapter makes a number of points:

- i. Experienced teachers had developed a powerful and stable, though not always well articulated, practical theory of teaching. In a significant number of cases, the existing practical theory was not compatible with the proposed innovation.
- ii. The process of acquiring new understanding of, and skills for, teaching is constrained by the nature and strength of the existing practical theory. Nevertheless, experienced

teachers exhibit responses similar to those of trainee teachers—'accommodator', 'assimilator', 'preserver' or 'resistor' may indicate the dominant response—but a greater number of experienced teachers, especially males, may be found in the 'resistor' group.

- iii. The variety of responses to a new theory of teaching might be explained by Sotto's discussion of perception and the role of schemata in learning, as outlined in Chapter Two. It is possible that an 'assimilator' or a 'preserver' may only think he or she is seeing 'the things inside one's head' whereas a 'resistor', with schemata 'completely different' from the idea being encountered as part of the innovation, may not 'be able to make much sense' of it (Sotto, 1994, p. 73).

If Sotto's view of perception is right, and if pedagogic change occurs primarily in the minds of teachers, the first responsibility of change leaders is to facilitate for individual teachers the renovation, or indeed the creation, of relevant schemata. This understanding seems not to have been available to the change leaders and heads of department who tended to seek structural methods to compel adoption of an innovation.

- iv. Students were engaged rarely, and only with partial success, in the renovation of their own theory of learning. Teachers remained focused on what they themselves could do for students, rather than on what *students* could do to enhance their own learning.

In Chapter Six, attention returns to trainee teachers and to the factors they identified as aids or hindrances to their own experience of theory change.



# 6

## **Bridges or Barricades? Factors that promote or block a change of practical theory**

In this chapter, trainee teachers describe factors they perceived to either help or hinder the revision of their practical theory of teaching.

Part A identifies aspects of the Graduate Diploma in Education program (and the Student–Teacher Interaction in the Classroom course, in particular) that trainee teachers at the University of Adelaide described as influential in promoting theory change. In Part B, the factors seen to be hindering their theory change are described. In Part C, the possibility is explored that some variations in the change experience may have been related to age, gender or subject specialization.

Part D concludes the chapter with an overview of bridges towards or barricades against changes in individual practical theories. It then makes connections between themes emerging in this chapter and the principles proposed at the end of Chapter Two.

### **A. BRIDGES TO THEORY CHANGE**

#### **1. OVERVIEW**

Memoirs from 183 trainee teachers were examined for indications of factors that supported or inhibited their change of practical theory. In some memoirs, several factors were mentioned, while others concentrated on a more detailed discussion of one. Table 5 lists the 11 categories

to which responses were allocated, and displays the sum of responses in each category in column two, and the percentage of the total number of participants in column three:

TABLE 5: CHANGE INFLUENCES MENTIONED IN MEMOIRS OF ALL TRAINEES.

Factors mentioned in memoirs	Number of responses	% of participants (n = 183)
(a) Own schooling	34	18.6
(b) Students' needs	28	15.3
(c) Mentor or guest lecturer	20	10.9
(d) Colleagues' influence	69	37.7
(e) Formal studies	151	82.5
(f) Theory or theorist	39	21.3
(g) Field experience supervisors	19	10.4
(h) Classroom experience	87	47.5
(i) Expectations of school	1	0.5
(j) Frame factors in school	2	1.1
(k) Other	15	8.2

Before any refinement of this information is undertaken, some observations seem appropriate. It comes as no surprise, for example, that school expectations and frame factors—while being relevant for a few—attracted little attention from the majority of trainees in the early weeks of their career in teaching. It is interesting to note, also, that all the factors listed from (a) to (h) were mentioned by at least 10% of the participants. Such a spread across eight categories is a reminder of the diversity of human interests and behaviour, and the value of providing alternative pathways to a common goal.

Nevertheless, a pattern consistent with the literature of educational change emerges from the data. A large majority of trainee teachers (82.5%) nominated their formal study for the Graduate Diploma in Education as a powerful influence. Frequently mentioned, also, were the

actual experiences in the classrooms of their field experience (47.5%) and the continuing interaction with the small groups of peers to which they had been allocated (37.7%). It is interesting to note that formal studies (or special attention to one specific theory or theorist) were linked with field experience in 45.4% of all memoirs. Furthermore, 56.4% of all memoirs coded as Y (the 'accommodators') recorded the link between theory and practice, while the D group (the 'assimilators') showed 43.9% and the N group ('no change') had 13.0% with the same combination of influences.

One of the most telling comments in this area came from a young English teacher as she reflected on her field experience:

I personally feel that the two five-week blocks were more important in allowing me the space to try out some of the theories and teaching methods imparted to us. In my opinion, this practical component gave us the chance to deal with real situations, many of which are not conveniently covered by a textbook example prescribing a particular surefire solution.

(V.01:038)

As attention is turned to the various influences reported in memoirs, the following paragraphs attempt to convey the substance and tone of responses noted in each category.

## 2. SPECIFIC INFLUENCES REPORTED IN THE MEMOIRS

**(a) Own schooling.** Responses in this category were by no means unanimously favourable.

Ten trainee teachers carried the model of their own happy student experiences into their teaching. Typical of this group's attitude was the comment:

There have been occasions when I was a student where it was the sheer drive of an enthusiastic teacher that inspired my class to find poetry engaging, or the teacher's own amazement at a successful science experiment that encouraged the whole class to succeed also. (V.01:090)

Three, who remembered their schooling as a mixture, chose to take up aspects of their teachers they admired and to reject what they disliked. One described his reaction to a change of teacher. His original teacher, who 'was always enthusiastic and very passionate about making music and was able to make the normally boring theory lessons fun and enjoyable', was replaced by a teacher who 'was very negative in class [and] was not willing to adapt her methods to suit different classes'. He commented:

I have seen how much of a negative effect it can have on students when the teacher lacks enthusiasm and does not develop a good relationship with students. I have learnt from the positive teacher how much fun it can be to teach music ... that is one of the main reasons I am becoming a teacher myself. (V.01:085)

However, most responses (twenty-one) in this category indicated a resolve to avoid the approach to teaching that they had found 'inadequate' (V.01:046) because they were taught about 'a world that was passing away' (V.01:115), or 'repetitive and boring' (V.01:077) or 'cruel and didactic' (V.01:120) or 'constrictive' because of a cult upbringing (V.00:042). They were critical of teachers who were seen to be 'remote from the real world' (V.00:046) or who sought mere 'regurgitation' of information (V.01:098) or who were 'narrow-minded' (V.01:079). The advice for beginning teachers was that 'putting an expert in front of a class doesn't get too many ah has from the audience' (V.01:045). Unhappy experiences had prompted these trainee teachers to aim for a fairer, student-centred, knowledge-constructing classroom.

**(b) Students' needs.** Twenty-eight trainee teachers identified the needs of students as significant influences on their own emerging theory of teaching. One young teacher of Japanese put it succinctly: 'Everything I do should revolve around my students' (V.00:016). A teacher of mathematics and science wrote: 'Before the course I saw the students as the end point. Now I see them as the starting point' (V.00:039). Others mentioned the individuality or

distinctive learning styles of students (V.00:017; V.00:023; V.00:027; V.01:020; V.01:038), or the special needs of adolescence (V.01:001; V.01:070; V.00:038), or the social, political and economic factors that shaped the quality of learning (V.00:019; V.01:045; V.01:053). A mature-age student caught the essence of what trainee teachers in this group appear to have learnt:

One of the most important things I've realised ... is that ... students are human and must be respected. Even though a student is not a peer, a teacher is simply a guide to help them in their development and all the techniques used or content taught is largely for the benefit of the student, not the satisfaction of the teacher. (V.01:117)

Perhaps the most memorable of all the comments was this from a young teacher of English and SOSE: 'It is important that what happens in class is what is best for the students, not what is easiest for the teachers' (V.01:023).

This kind of explicit acknowledgement of the centrality of students in the learning process was found in 15.3% of memoirs.

**(c) Mentor or guest lecturer.** This category was intended to collect references to individuals who exerted surprising or noteworthy influence on the development of a trainee's practical theory. Some trainees referred to the example of lecturers and tutors in the Graduate School of Education and in earlier tertiary courses (V.00:021; V.01:047; V.01:107) partly for their sustained modelling of learner-centred activities and partly for the flashes of insight sparked by one-line advice such as 'The smile you give your students may be the only one they get all day'. One trainee teacher in particular—impressed by the comment, 'We need to keep the inner worlds of an individual alive'—said 'These words ... struck deep with me and really began the whole reflective process that I will apply to my teaching career' (V.01:046). Others acknowledged the impact of family members with highly regarded teaching reputations

(V.00:007; V.01:047) or strikingly influential teachers encountered at secondary level (V.00:049; V.01:002). The new perspectives opened in their sessions with visiting principals from government and non-government schools during the early days of the course were also favourably noted (V.00:046). Again, in this context, attention was drawn to the incisive and memorable comment that prompted further reflection: "Education is life-long, schooling is only a small part of it" has 'stayed with' one young teacher (V.01:023).

Nevertheless, the largest group in this category was clearly comprised of those who appreciated the input of guest lecturers. Of the twenty memoirs recorded in this category, twelve made specific and sometimes extended comment about the visitors, whose presentations were polished and entertaining in their own right—'we had a chance to observe and learn from experienced teachers' (V.01:104)—but specifically valued for the authenticity that surrounded the information they offered:

... these speakers have given us an insight into crucial information of what happens in schools such as SACE, SSABSA and WABLA [sic] as well as equipping us with new skills that we need as a teacher. (V.00:045)

The sense of relevance was well caught by the trainee who wrote:

I listened attentively throughout the lectures on problem-based learning and support for behaviour management in schools because these issues are respectively interesting and useful to me. (V.01:045)

**(d) Colleagues' influence.** Into this category were gathered all references to the student-focused methodology particular to Student–Teacher Interaction in the Classroom (STIC), the subject for which the memoirs were originally written. In addition to a weekly one–hour lecture, trainee teachers also attended a four–hour session during which peers presented a major topic, a tutorial group of twenty or more students met to discuss the topic of the day,

and then there was a meeting of their peer group. The peer group consisted of about five trainees who were a subset of the tutorial group, and were responsible for two presentations during the year as well as planning an excursion and other activities.

The focus on active learning was a surprise to some and a source of distress to others:

After four years of being lectured to at university, one forgets that there are other methods of teaching and learning ... Changing that way of thinking and breaking free of the university way was a big step in my professional development. (V.00:032)

When this course started I was very optimistic ... As days and weeks went by, I became disheartened. I did not know if I was on the right path at this stage of my life ... I and many others specially thought that Student-Teacher Interaction in the Classroom was a waste of time ... I strongly felt that we were paying good money to get nothing in return! We were not being adequately prepared ... When we found out that the students actually had to do all the presentations, we felt cheated ... We wanted someone qualified to relay the information to us. (V.01:009)

Expectations that had developed during years of primary, secondary and tertiary education and, in this case, a career outside of education, were apparently under challenge. Fortunately, the shock experienced by this trainee teacher eventually gave way to insight and appreciation:

Now that the second teaching practice is well and truly over I can actually sit down and reflect on this year ... Do I still feel cheated by the whole course? I feel ashamed to have thought those thoughts ... The course is unlike any other I have encountered ... Even though [the responsibility] seemed to scare many of us ... it did play a fundamental role in shaping us ... We had endless opportunities to direct our own actions and take responsibility for the people involved as well ... just like an every day school setting. (V.01:009)

In fact, 69 of the memoirs expressed firm approval of one or more aspects of learning led by peers. The following assessment is typical of trainees' general agreement that the presentations of colleagues promoted sound learning:

I feel that having other students provide the tutorial information was extremely valuable. I believe that in many ways my peers were in the most appropriate position to provide me with the type and level of information that I required. The information was presented in a variety of manners and also at various levels of understanding. Some groups took a more theoretical approach while others were more practical and applied. This provided me with much needed variety and also an understanding of each of the issues at a level that I could understand.

(V.00:033)

Others supported this view with comments that 'the presentations ... armed me with many tools' (V 01:086) or that 'from presentations I picked up enough ideas as to how to handle many varying situations' (V.00:058). Also commended was the way that variety of presentation style fostered critical reflection on one's own methodology:

I remember thinking during some of the presentations, 'What makes this so enthralling?' Usually it was that the person had taken a little extra time to organize activities and technologies. Also their manner was usually confident and their language clear and simple. I decided that this was what was required for myself to become a better teacher. (V.01:109)

The models were not always positive (and not always treated sympathetically), but the learning was just as powerful:

It was evident that confidence eluded some presenters and they hid behind the lectern or their shaking notes. Ineffective use of the overhead projector, whiteboard and video equipment gave students a window of opportunity to chat and move about. Other presenters projected aggressive body language—voice volume, attitude and dress sense were sometimes incongruous to the nature of the subject. Lecture-style talks went on and on and on and the



presenter seemed unaware of the restlessness, suppressed yawns and glazed eyes of the 'audience'. Groups that worked as individuals and only came together to present were obvious, as well as poor preparation and subject knowledge. All these things screamed at me and were incredibly great markers in what to avoid in the classroom. (V.00:008)

Trainees reported powerful learning on the other side of the presentations, too. In each properly functioning peer group, there were discussions about scope of topic, approach to be adopted, clarification and allocation of roles, integration of segments, and so on. During this process, individual members of the group were obliged to achieve detailed understanding of their segment and a broader appreciation of the whole topic. This appears to have promoted relevant and effective learning:

Our group focused on classroom behaviour management. This session was paramount in my professional development in that it extended my understanding of how to manage a classroom. I found that there are many different theorists to whom one can turn in order to have effective behaviour in the classroom. This is very comforting for anyone who is new to the profession. This session was fantastic because as a group we discussed all of the theorists together and talked about our experiences as students where our teachers had various behaviour management policies. (V.00:046)

While the group-planning sessions and the actual presentations were valued for the acquisition of knowledge and the sharing of responsibility, they also honed research and communication skills, provided additional experience in holding the attention of large groups, and established expectations. As one trainee put it: 'My fellow "Group One" members were highly organized which made me strive to achieve the same level of professionalism and organization' (V.00:046). Group work also encouraged the development of professional contacts, friendships, and confidence in one's own capacities. Indeed the peer group came to be regarded in quite a few instances as an important source of support, prompting one young

man to liken it to 'a small family ... in which people can feel reasonably comfortable to talk about issues during the year' (V.01:056). Another saw membership of the peer group to be:

... the most influential and entertaining aspect of the course ... We were able to openly discuss our failures and triumphs in the classroom. Members were prepared to listen and offer support as they were going through similar situations. These support groups were very educational as the stories shared were great examples of what to do and what not to do in the classroom. (V.01:053)

Another, and perhaps the most frequently cited, benefit of the small group strategy was that the actual and urgent tasks facing the group were the context for highly effective learning of group skills themselves, which would be essential both to productive collaboration with colleagues and to the successful application of group learning principles in their classes. A young teacher of mathematics and science neatly encapsulated the opinions of others when he wrote:

... we learnt the art of sharing responsibilities to complete activities, a skill that will put us in good stead in future staff organizations. I also think that if a teacher does not have good group working skills, he or she is less likely to engage his or her students in group work in the classroom. (V.01:031)

Groups were seen to promote a deeper appreciation of diversity of knowledge, values and insights, too:

All had something to contribute, yet turmoil had to prevail before harmony could find a resting place. Despite all of our training in communication, diversity, different ways of learning and the need to accept these differences, there was a brief period in these arrangements when things went horribly wrong. How would we teach such skills to our students, when we as would-be teachers had yet to master these lessons and the difficulties

these lessons entail? Maybe as teachers we need to teach ourselves the very things we try to teach our students. (V.01:116)

The larger tutorial groups were also valued. They were seen as a forum for sharing experiences and considering alternative solutions to practical difficulties in a somewhat more structured environment and in the company of a tutor, who could help focus discussion, identify further considerations, and point to relevant resources:

I was able to learn from other students' experiences and suggestions. It encouraged me and made me see the problems and situations from a different viewpoint. For instance, when I was worried about behaviour management, another student who was also worried about it asked our tutor how to manage this kind of problem. This problem was discussed in the tutorial and the other students talked about their experience and their way to solve the problem. It was a precious opportunity for me. (V.01:082)

Amidst the general approval of tutorial and peer group activities, there were a few dissenting views. There was the extract quoted in Chapter Four in which an army officer was angered by the open-ended question that introduced the very first tutorial of the year. Variable quality in the presentations also drew a number of complaints. The following extract probably reflects the opinion justifiably held by several others:

Although I learned a great deal from what I had to research for my presentations, I think that the structure of the course could be changed. A four-hour block of intense study is a long time particularly when it's getting towards the end of the term or semester. Two hours of sitting and listening to group presentations is a long time to not be able to move or talk. As student teachers, we are constantly told that as the attention span of our students is very short we have to make sure that we keep on changing activities. I think that even though we are older our attention span is not as wide as two hours. I was a little disappointed with the way our tutorials

ran also. They were often taken over by members of our group who liked to complain rather than discuss issues with the rest of us and work out logical solutions. (V.01:077)

A contrary view would be more representative of the large majority who approved of the methodology employed in STIC:

For me, the most valuable aspect of the course has been preparing and watching the group presentations. This has been a helpful practical experience of researching a topic, planning a lesson and presenting it to a group of people. We have learnt the value of reflecting on our own teaching in order to develop and improve ... We also learnt a great deal by being taught by our peers, even the variety of presenting styles created interest. Other people's teaching styles have been a source of creative inspiration. (V.01: 002)

Material collected in this section has considerable bearing on determining the context in which a change in a teacher's practical theory can be effected. It is relevant, therefore, to conclude with the words of a mature-age trainee who was facing a challenge to her existing theory of teaching even greater than the defence personnel who have already been cited:

The group processes help me to see the merits and advantages of group work. In my culture, we prefer competition rather than sharing ideas with others ... Some cultures, especially the traditional Chinese, view group work with suspicion. It took me some time to get used to the idea of group work when I started university study in 1994. We did a lot of practical work in groups of two or four. But I have to say the group work introduced in this course taught me the procedures of a successful working group that I can apply in my profession. (V.01:099)

**(e) Formal studies.** Because of the context and the assessment task that gave rise to these memoirs, the 151 memoirs that provided material for this category were approached with some caution. On one hand, there was potential for a number of students to present espoused rather than authentic views, and to avoid critical comments about the content or methodology of the course. On the other hand, the memoirs were written by graduate—and in many cases,

mature entry—students, who were completing a course that encouraged independence of thought and who were sufficiently confident to write frankly about their experiences. As it happened, there was no shortage of constructive (and, occasionally, irate) criticism, and the tone of the great majority of memoirs was uninhibited. One example may help to illustrate the strength and sincerity of so many memoirs:

I would not have risked the techniques employed during my teaching if the seeds had not been previously planted during the course. Whether this knowledge was imparted by individual student teachers through their presentations, or by tutors through their lectures, the effect was the same and very beneficial. Knowledge is power, and to share is to empower the individual. (V.01:044)

The first point to arise from analysis of references to formal studies is that course content was fresh and often surprising. Many trainee teachers commented that they had acquired new knowledge, or had developed a deeper insight into a teacher's role, or that there had been a dramatic expansion of their understanding of the aims and principles of education. As one young man put it:

I ... started the course thinking I knew a lot about teaching. However, after listening to some of the issues and problems that are linked to being a teacher, I began to realize that I knew very little. (V.00:017)

Another declared:

One field of study I would never have touched without the course was psychology. Its immense importance to our profession only became clear after listening to various lectures and presentations. (V.01:039)

A similar experience was reported by a young teacher of LOTE:

The course made me consider exactly what motivation is and where it comes from ... I believe that knowing why some students always seem to be motivated and others don't, and more importantly how we as teachers can use our knowledge of the factors behind motivation to engage the interest of all students is a necessary skill for all teachers. (V.01:036)

This last extract picks up the sense of confronting a new idea—so cogently conveyed in other memoirs by the image of the course 'open[ing] my eyes' (V.00:005; V.00:035; V.01:001; V.01:021; V.01:027)—but it also declares the potential for new knowledge to provoke reflection and growth. Amidst all the references to a solid foundation of new knowledge, dramatic changes of understanding, extensions of repertoire, and enlightening experiences, there were also declarations of action:

I have found ... Student-Teacher Interaction in the Classroom a very valuable experience, as it has above all stimulated me to analyze and evaluate some aspects of my teaching. (V.00:049)

For some, the formal course of study had become the 'medium for continuous reflection' (V.01:030), allowing 'me to comprehend not only what I was doing, but why I was doing it, without explicit instruction' (V.01:057). The new knowledge also promoted a different viewpoint that would 'challenge pre-existing ideas' (V.00:003), foster the capacity to look at schooling from the teacher's perspective (V.01:062; V.01:111), cause trainees to 'rethink cherished beliefs and values' (V.01:046) or would be an 'antidote to narrow-mindedness' (V.01:079). The course 'opened [one student's] mind to new ideas and concepts' (V.01:126). Another wrote that it had 'challenged me to reflect on my work and this process had given me the confidence to attempt my own ideas of teaching' (V.01:127). Furthermore, the course 'has allowed me the time and opportunity to investigate the areas which I need to develop in preparation for teaching High School students in the future (V.00:024). Even those whose memoirs were assessed as being in the N category (the 'resistors') were able to find something

of merit in the theoretical part of the course, although in these instances the chief advantage was the gathering of additional techniques to be added to the tool box.

In summary, trainee teachers say that formal study of the theory of teaching was essential. It facilitated the transition from a naïve lay perspective to the insights of a professional teacher. It provided a solid intellectual base for continuing growth. It promoted a capacity for profound reflection on current performance.

Trainees were clear, however, that theory might be necessary, but it is not sufficient.

Repeatedly, memoirs asserted tight links between the formal aspects of the course and the actual experience in schools that constitutes the practicum of the course. Data reported in this segment should, therefore, be closely linked with section (h) which deals with the field experience component in the Graduate Diploma of Education.

**(f) Theory or theorist.** Thirty-nine memoirs contained references to a particular theory or theorist that were so detailed as to suggest a stronger than expected formative influence. Apart from one paper that discussed the development of self-esteem, the others fell into two distinct groups. Twenty-four papers indicated a special interest in learning theory, and devoted space to a discussion of Piaget or Vygotsky or multiple intelligences or problem based learning. The remaining fourteen papers, which focused quite heavily on Kounin, Rogers, the Canters, Dreikurs or Balson, signalled the basic concerns of this group of trainees, and the classroom management aspect of the course that proved especially relevant to them.

**(g) Field experience supervisors.** While almost half the trainee teachers drew attention to the formative influence of field experience, only nineteen (10.4% of all participants) made specific comments about their university or school supervisors—and, here, school personnel predominated.

Some found themselves amongst caring and supportive professionals:

Having come from a government work environment, my initial anxieties ... were more concerns for the staff room as opposed to the classroom. However what I found was nothing like that at all. Here were people who were mentors, and they had a very concerned responsible attitude to my development ... I suppose what rubbed off on me was the resolve of staff. (V.01:0327)

Important learning emerged from watching and working with skilled teachers:

There was one in particular that really inspired me and taught me an enormous amount on the English curriculum, how to conduct yourself in the classroom and with your colleagues, and how to design an exciting unit plan. (V.01:077)

My supervising teacher ... [had] lots and lots of fun and interesting things to do ... she had been teaching for many years and gave me many important factors that I hadn't thought of and introduced me to the many different aspects of teaching, including the concept of using games to emphasize grammar points. (V.00:012)

Others were not so fortunate, but were able to balance negative against positive experiences, and to turn distressing incidents into powerful understandings of what to avoid in their own practice:

Of course teachers work hard, and at the end of the day patience may be compromised. It is natural to feel irritated ... by rowdy learners also experiencing 'end-of-day fatigue'. It is unacceptable, however, in my mind to denigrate learners and harass them, because this is the style that the teacher had been using for the last thirty years. I feel strongly that this is an indication of bad teaching ... (V.01:074)

Two trainees, in particular, were able to view objectively the conflicting role models they had encountered, and to articulate their need to make a professional choice:



From observing various teachers I was able to model myself on the aspects of their teaching I considered positive and also make myself aware of the types of teaching I didn't want to adopt. (V.01:104)

I noticed that the successful teachers had a certain sparkle in their eyes, and a spring to their step. They had an enthusiasm that was obvious to the students, a magnetism that grabbed the students' attention and held it. It excited them. It made them eager to learn—and most importantly it motivated them 'to seek, to find' and thereby assume some responsibility for their own learning.

On the other hand were the teachers who had no sparkle, and no enthusiasm for their job. These teachers walked in the classroom and barely acknowledged the students' presence. Books were opened (sometimes) and notes taken; and sometimes questions were asked and answered. The lessons were boring and non-stimulating with no connection whatsoever between the students and the teacher. This is the type of teacher I do not want to be like. (V.01:086)

Overall, nine of the 19 memoirs in this category reported a largely positive interaction with supervisors of field experience; the others were able to distil useful lessons for their own development.

**(h) Classroom experience.** Just under half of the trainee teachers cited the experience of working in a real teaching context as being a strong formative influence on their professional development. In most cases they were referring to the ten weeks they spent in two secondary schools, but some also commented on the insights gained during the Botanic Gardens excursion when they were each responsible for the care and learning of a primary school student for a morning.

The comments, generally, were predictable. Field experience was described as 'the most important aspect of the course' (V.01:126) for it was an opportunity to work in a 'real

situation...on a meaningful task' (V.00:028) and to acquire practical experience (V.01:018, V.01:019; V.01:024; V.01:030) which enabled them to 'understand teachers' work' (V.00:035) and to gain 'a fuller understanding of theory' (V.00:006). More picturesque images confirmed these opinions; one trainee said:

By having two practical experiences very early in the course, I was quickly given the opportunity to become very aware of how different it is being on 'the other side' ... during the practicums another fundamental was driven home. There is no point saying something if no one is listening. (V.01:076)

Other trainees appreciated the 'space to try out' ideas and theories (V.01: 038), and to gain 'insights into important skills [and] to correct misconceptions' (V.00:001).

For some, initial classroom experiences may have been comparatively tranquil and affirming, or memorable for a conspicuous success. There were occasions for perceiving and valuing the variety of personalities, interests and abilities found in the classroom (V.01:021), for noting how the reality of the classroom offered examples of theory in action—failure avoiding strategies (V.01:019) or successful application of Balson's advice (1982) for dealing with aggressive power-seeking behaviour (V.01:099). It is possible to sense the recollected elation of lessons that worked—teaching a LOTE class to sing the principal parts of verbs (V.01:037) or launching into an impromptu account of how the brain works for a fascinated Year Ten class (V.00:025). For people in this group, field experience confirmed their theory of teaching and encouraged them to continue to develop it. Significantly, the combination of traditional teacher and traditional trainee seemed to intensify the satisfaction expressed in the memoir: 'I am certain that a large proportion of my professional development is due to the two five-week teaching practices' (V.01:080) wrote a young teacher of SOSE whose memoir had been placed in the no-change category and who had earlier described his belief that:

A really effective teacher knows inside what they want and to a certain degree, this feeling inside a teacher has [sic] cannot be taught to them, it is something that has developed inside and is as personal as any emotion. (V.01:080)

It must be noted, however, that early classroom experiences were seldom stress-free episodes.

One trainee wrote: 'The teaching practical has helped me to come to terms with myself. I have ... come to realize my strengths and weaknesses in regards to presenting materials to students' (V.01: 058). Another, a mature-age trainee from a military and police background, reviewed the Botanic Gardens visit and wondered whether:

... the lesson learnt could have been achieved in a shorter time. But, on reflection, I'm not so sure that this is the case. It is certainly one of the essential understandings and does well to come this early in the course. It was one of a number of essential shocks to come my way this year. (V.00:051)

Indeed, there were shocks for a number of trainees. The descriptions contained different words: one wrote that her students at first 'were bored and did not listen' (V.00:004), another realized that her approach to one of her classes 'was a total failure' (V.00:012); there were reports of an 'unsettled Year Eight class' (V.00:036), of how another trainee 'struggled ... to deal with situations as they arose in my classroom' (V.01:108), of 'how hard it is to control a class of teenage students ... and the realization that I wasn't there to be liked I was there to teach' (V.01:078). The message was constant, however. Students became aware of their own 'inadequacy' (V.00:043) and their 'inadequate professional preparation' (V.00:010). Perhaps the most trenchant account of the surprise, disillusionment or despair engendered by some early teaching experiences has already been cited in Chapter Four (pp. 121–122). There the young teacher of English described how her collision with disinterested and antagonistic students compelled a radical reconsideration of expectations. A few sentences merit repetition in this context:

I embarked on this year with the attitude that students were all empty vessels eagerly awaiting my instruction ... The fact is (as I learned all too quickly), students already have their own opinions about everything—even if they don't know anything about it. ... My theory of teaching had to be readjusted in order for it to survive in the hostile environment in which it found itself. (V.01:028)

A similar crisis was found in a trainee science teacher's account of trying to combat 'student disengagement, poor attendance and disruptive behaviour'. He also defines other facets of teachers' work that are not to be gleaned from a text book and appear to be not well understood in the wider community:

It is not surprising that many preconceived ideas held about teaching methodology change substantially after first hand exposure to teaching in the classroom. In great part, this is because the preconceptions—no doubt based on worthy ideals—are formulated and acted out in the imaginary settings of the mind where even anticipated problems are neatly resolved. These simulations also tend to deal with only one or two matters at a time. Actual classroom experience, however, quickly redresses many of the notions both in terms of unforeseen complications and the number of matters that must be dealt with simultaneously. Another consideration—unanticipated—is the high level of energy required to maintain a good learning environment. Perhaps, self preservation in hand with a determination to succeed, more than anything, quickly conspired to either adjust, abandon, or replace many preconceptions. This led to the creation of a new set of views. (V.01:029)

The overall impression gained from comments summarized in this section is that field experience is the crucible in which the presentations of theory and the discussions of alternatives become urgently relevant. Repeatedly, trainees told how—as novices—they confronted the reality of secondary schooling, and as a result were obliged to reappraise their methods and beliefs. Significantly, many of them returned to the theory for a deeper

understanding of the issue concerning them and for suggested solutions. This tight linkage between theory and practice looms as a dominant theme in the memoirs.

**(i) Expectations of school.** For trainee teachers, there inevitably are school-based requirements that impinge on what they do during their field experience. Some were implied when, for example, one memoir described how family illness delayed the trainee's arrival for the first meeting with his school supervisor, or when a number of trainees mentioned a school's behaviour management strategy. There was only one direct indication that policy shaped lesson planning, and that, indeed, should more properly be attributed to a systemic requirement as it referred to the SACSA framework and its encouragement to teachers 'to build on students' existing knowledge, allowing [them] to construct their own meaning from tasks' (V.01:101).

It came as no surprise that trainee teachers seemed unaware of any pressure from school policy to teach in certain ways. This category becomes more relevant when the perceptions of experienced teachers are reported in Chapter Seven. The potential for school expectations to inhibit the development of new theories of teaching and learning will be examined in Part B of this chapter.

**(j) Frame factors in school.** Two trainees reported that structural or administrative factors in schools promoted a change in their practice. One described how the availability of computers and the syllabus expectation that she would use them for a 'rather dry' geography topic posed a novel challenge:

This involved a great learning curve for me, to plan, prepare and implement, within a given time, a topic I was not familiar with ... The outcome of [an evaluation sheet gathered from students] was very informative, useful for future projects and the few warm fuzzies enhanced my self esteem. (V.01:044)

The other trainee explained how, in retrospect, he realized that the behaviour management policy and practices of a school—with emphases on orderly beginnings and ends for lessons and systems for positive and negative reinforcement of student behaviour—set him up for success:

I was able to build on the firm disciplinary foundations which the school provided without even realizing that those foundations existed and were having such an influence. (V.00:009)

Frame factors were mentioned in other memoirs, but are more appropriately placed in Part B.

**(k) Other.** Fifteen trainee teachers drew attention to change influences that fell outside the categories described in preceding pages. Ten of them cited previous employment as having already been a powerful factor in the construction of their practical theory of teaching. A home-schooling parent, a tour guide, swimming and basketball coaches, music teachers and tertiary tutors came to the course with the foundations for teaching that had grown beyond perceptions consolidated in adolescence. Four trainees were greatly influenced by the birth and/or ongoing care of their own children, while two called attention to their disapproval of Keating's teaching style in *Dead Poets' Society* and two others—international students—made special mention of their struggle to reconcile the pedagogy they had known in their schooling with that promoted in the course they were just completing. There was a reminder, too, that global events impinge on schools; two memoirs contained insightful discussions of the aims of education in the light of 9/11, the Gulf Wars, and subsequent acts of terrorism.

## **B: BARRICADES AGAINST THEORY CHANGE**

### **1. OVERVIEW**

It was predictable that trainee teachers reviewing their progress through the Graduate Diploma in Education would offer some evaluation of the course itself. These trainees—

already graduates and, in 43% of the cases, over the age of 30 and probably coming from a prior career—were well placed to illuminate their own experiences and to cast fresh light on the contributions of others. In all, 34 memoirs provided 45 useful insights into factors that impeded the process of theory change. Some trainees voiced concern that a subject like STIC concentrated too heavily on theory, whereas they would have preferred more specific and practical direction on what to do when they reached their classroom. These were the people interested in obtaining a toolbox but not overly concerned to revise their pedagogy. Others (a large majority) concentrated on their two blocks of teaching practice. They proposed a lack of congruence between the constructivist approach to learning advocated in the Graduate School of Education and what they perceived to be the realities of today's secondary schools. They expressed opinions about the negative influence exerted by secondary students themselves, issues of funding and resources, and the professional lives of teachers. Each of these topics will be addressed in turn.

## 2. SPECIFIC INFLUENCES REPORTED IN THE MEMOIRS

**(a) The influence of students.** Eight memoirs pointed to the misbehaviour or disengagement of students as a constraint on what trainee teachers could attempt during field experience. While some trainees found space to try new teaching approaches (part (h) above), those cited in this part found themselves in a struggle for order that precluded collaborative, student-centred learning activities. The situation sometimes was open conflict: '... teenagers thrive on ruining the teacher's plans and behaving in such a manner that infuriates the people that are trying to educate them' (V.01:020). At other times, the task was to overcome disinterest or to surmount persistent requests that learning tasks be justified (V.01:029). Trainees began field experience with the best intentions, as a young teacher of Japanese and music explains:

I tried to be friendly and let students work independently, but it only worked in two of my classes, but [in] the other it was a total failure ... However, I think I did okay when I moved my theory of teaching towards a more structured and rigid theory, even though I did not like teaching that way. This structured teaching forced the students to study and become more controlled with what they were doing. After I managed to control them as much as I could, I allowed them to do a more relaxed and self-controlled study. This was not a very good idea! (V.00:012)

The same rueful tone is repeated as a mature-age trainee reflects on one of his more challenging assignments:

... when faced with a maths class for a double lesson on a Friday afternoon, I have been reduced to the basic survival tools of threats of punishment ... I was reduced to the same basic level of crowd control that teachers have been using for more than a century. I do not feel good about this and I hope it is less likely to happen when I have my own classes and have more time to build positive working relationships with my students. (V.01:128)

He is right, of course. The Friday afternoon problem is less severe for the experienced teacher. Nevertheless, the incident remains a useful illustration of students' capacity to reinforce authoritarian models of teaching, and to strengthen the perception of trainee teachers involved in this study that 'idealistic' theory is incompatible with the 'reality' of some schools and some students (V.01:012; V.01:017; V. 01:029). The pedagogic consequences of continuous skirmishing in classrooms were well caught by a more mature trainee whose science class—regarded by some school staff as 'little terrorists'—was denied access to laboratories. He may have enjoyed being 'always on the edge ... not knowing what could happen from one moment to the next', but that may explain why he felt his 'enthusiasm levels were falling, more so out of tiredness than despondency' (V.01:032). In the short term, he was denied an important avenue for teaching. From the longer perspective, his capacity for



creative teaching was being eroded—a point made by another trainee facing a similarly disruptive class (V.01:044).

**(b) Funds and resources.** Concerns over funding- or resource-based limitations were less evident than frequent media speculation might suggest. In fact, in this area there were four references, none of which suggested that a unit of study or an individual lesson had been affected by the lack of essential or optional equipment. One comment suggested that the implementation of a constructivist approach to learning was constricted by class size and unspecified financial 'limitations' (V.01:101). On a similar note, there was also an impassioned plea in support of government schools:

If any sort of wave of new teaching approach, whether it be problem-based learning or any other, is to be introduced into the Australian school system, it would most likely come from the private system rather than the woefully underfunded public system. (V.00:018)

These were not personal complaints but anxieties arising from informed observation of field experience schools and the human resource difficulties that were seen there. The concerns were about the stresses of high workloads (V.01:074) and the 'burnt out hopelessness' (V.01:012) they engendered.

**(c) Professional lives of teachers.** Trainee teachers perceived that one consequence of a press for constructivist learning would be an increase in the already high work loads in the field experience schools. One captured the dilemma very clearly:

Rather than numbly accepting what they are force-fed, the students learn to question and analyze, to construct and deconstruct information, relating it to the world(s) in which they live ... On the down side, I think facilitating forces the teacher into dealing with the students on a far more individual basis with much less opportunity for stereotyping them, which must add incredibly to the teacher's workload. (V.01:103)

Another sensed that management requirements, which had teachers 'concentrating on meeting goals and objectives', could divert focus from students' learning. After describing the 'lack of unity' and the 'interdepartmental disharmony' she observed in one of her placements, she emphasized the potential for 'negativity ... generated within the school system by budget cuts, teacher layoffs and a lack of respect' to become a barrier to the facilitating of 'creative thinking in classrooms' (V.01:044).

Some schools were seen to cope better than others with the demands placed on them. One trainee was able to make a useful comparison between two of her field experience schools. One, a small country school, 'had the optimal learning environment' in which 'students were made to feel valued' and:

... teachers knew most of the students' parents quite well ... Teachers were involved in many of the extra-curricular activities ... which at times spilled over to the weekend; no one seemed overly disgruntled by this. There was a sense of mutual trust in the school; classrooms were left unlocked, students were able to access the library and computer rooms during lesson time, they were trusted to do the right thing and return to class on time ... everyone seemed to share a general sense of cooperation and pride.

... In comparison ... every student at [name of school] was treated as a potential thief, doors were locked, movement around the school was limited, graffiti was rife and a sea of asphalt surrounded recreation areas ... Students were not allowed to participate in extra-curricular activities outside of school hours and some year levels were not even allowed to go on excursions. The sense of community was missing from the school and there was little evidence of good rapport between teachers and parents apart from the odd phone call, which was generally hostile. (V.01:072)

It is tempting to be critical of the second school, but that was not the intention of the writer.

Indeed, the anecdote was a useful illustration of the importance of positive affect.

Nevertheless, in conjunction with the earlier section describing the negative influence of

student behaviour, it points to the difficult environments that constrain the work of some teachers. A similar comparison was reported in another memoir (V.01:060) where the freedoms accorded students in a country school 'would have been impossible at [name of school] as students could not be trusted to work unsupervised'. More to the point, both examples raise questions about the prevailing pedagogy in each of the schools—an issue also raised in several other memoirs. The memoir just cited goes on to describe how the trainee attempted during another field experience placement:

... to use creative teaching approaches ... particularly in classes where information might overwhelm the student [but] ... strangely, the teachers at [the third school] were not interested in the cognitive learning approach. However I pursued it and the students became receptive to it. (V.01:060).

Another trainee, attempting to apply Glasser's emphasis on the 'development of positive relationships between the student and the teacher' found that it was:

... extremely difficult to execute [that plan] because it often went against the general school culture ... that doesn't always meet the needs of all the students (I often heard students referred to as stupid or a ratbag). (V.01:057)

There were instances, too, where supervising teachers were perceived to deny respect to their students:

At times, I observed other staff calling students to their faces the lowest piece of garbage, slimes and other such names. I found this very disturbing, and realised that this was because the students were personally being insulted, rather than the behaviours being dealt with. (V.00:031)

Other memoirs made the same general point—the learner-centred approach to learning that was encouraged in the theoretical part of the course was not always compatible with the ethos

of the field experience school. Facing a class that had been 'very put off maths', one trainee teacher reported that she 'put considerable effort into interesting the students **into** maths, but [when confronted with the expectation that exercises in the text book would be completed] it was then difficult to do all the repetition necessary for learning' (V.00:043). The same 'need to cover a specified curriculum in a discrete period of time' (V.01:101) was listed by another trainee as a factor intruding into the quest for effective learning. Perhaps the most serious concern was that some schools played down academic expectations:

While the teaching staff were excellent and extremely supportive, I immediately sensed the low expectations they held for their students and shortly discovered the reality of what was achievable ... My focus was shifted from facilitating and accelerating the learning of the students to keeping them occupied, well-behaved and quiet. My supervising teacher was quite casual concerning these expectations, such that if these aspects were achieved, then any additional learning was a bonus. (V.01:012)

These extracts from memoirs point to the collective code that develops within a school and shapes the teaching strategies of its staff. Frequently it is a teacher-centred transmission approach that contradicts current trends towards constructivism—a conflict that does not pass unnoticed by trainee teachers:

I am uncomfortable, to say the least, with the teacher-centred focus system which seems to be the preferred teaching style of a number of teachers whom I met during my teaching practice. In my opinion, this style renders the students subordinate to the 'power' of the teacher and does not liberate the students at all. Rather, this style delivers information from the pedagogue to the empty vessels which either fills them, or not, with that which the pedagogue dictates to them ... In my opinion, this is an antiquated style of teaching and seems to me to exist for the teacher's benefit of maintaining control at all costs. This style takes less effort than designing innovative lessons. To perpetuate the same style of lessons year in and year out renders the

pedagogue within his or her comfort zone. Beyond the comfort zone is uncharted territory, for some. (V.01:074)

These observant trainees not only recognized schools in which the prevailing collective code was so static that it hindered their attempts to establish learner-centred lessons, but they soon detected the symptoms in their supervising teachers. One commented:

... on my second practicum I went to a conference all about motivation ... I found that a lot of the things he was saying I had already learnt from this course ... which made me wonder why he was talking to a room full of teachers. Wouldn't they already know this? The reality was no, they wouldn't. A lot of teachers these days have been doing it for a long time and they often rehash the same material each year, forgetting that the students have needs too.

(V.01:065)

An even more disturbing description of the entrenched teacher appeared in the writing of a young teacher whose school supervisor was:

... a male mathematics teacher in his mid-thirties: "I've got one, maybe two, smart kids in my class and the rest are all pretty dumb. It's Applied Maths, for ---- sake. I don't know what's wrong with them. It wouldn't surprise me if most of them fail". Among other things, this person had used the same resources, teaching methods and philosophies since beginning his teaching career fifteen years ago, was inflexible, and openly rejected advice on different teaching approaches from his peers—he was not to blame ... I began to assess my own theory of teaching as I found myself thinking how the mathematics teacher's views on teaching were so different to mine. The most striking difference was that the mathematics teacher was teaching to impart knowledge and not for student learning. (V.01:073)

Perhaps he was one of those teachers about whom another trainee wrote: 'I think some teachers spend so much time teaching that they forget how to learn' and consequently are unable 'to empathize with the student', can not 'develop professionally [or] personally', and

come to believe 'they don't have anything more to learn' about their profession (V.01:037).

Yet another memoir recorded the clash of ideas when a young maths teacher was:

... provided with a textbook and a time limit to finish a topic. It was against my teaching theory, which is an innovative approach, but I had no choice. The students had already been trained to the idea of a fixed world of knowledge that they must come to know. (V.01:100)

Trainee teachers were clear that some school supervisors had ceased to be learners about their own profession. Their understanding of new insights into human cognition—narrow or partial or non-existent—stood in the way of their own and their students' development and perpetuated traditional approaches to teaching and learning that now are believed to have only specific and limited applicability. Perhaps the closing extract from memoirs will define—not only the collision point between trainees on field experience and their supervisors—but an essential truth about pedagogic change. In his advocacy of a '*dinnerpartean*' view of teaching—'teacher as host rather than teacher as drill instructor, CEO, head abbot and chief librarian'—a view that urges the teacher to 'encourage students to *love* thought itself', a talented trainee teacher argued:

The primary barrier to establishing a culture of voluntary learning is the perception of knowledge and skill acquisition as local, limited and specialized. Local because it is often the immediate (and therefore 'relevant') and ephemeral which is prized well above the broad and the fundamental. Limited because it is the nature of human beings to create borders and place objects and processes well within those borders and nowhere else, and specialized because the ability to do one thing extremely well seems somehow more valuable than the ability to do a great many things moderately well. (V.00:034)

Like Campbell and Campbell (1999), this young man believes that pedagogic change first occurs in the minds of teachers. His peers are telling us that the failure to change also occurs in the mind.

TABLE 6: FACTORS INFLUENCING TRAINEE TEACHERS' EXPERIENCE OF PRACTICAL THEORY CHANGE, BY NATURE OF CHANGE, AGE GROUP AND GENDER.

Change	Age	M/F	Number (% of all M or F)	a	b	c	d	e	f	g	h	i	j	k
Y Significant Variation on Existing Beliefs and Practices.	< 30	M	9 (13.2)	4	2	0	3	7	1	1	4	0	0	1
		F	29 (25.2)	6	5	1	9	27	6	4	21	0	0	2
	30-39	M	7 (10.3)	2	2	0	2	6	1	1	6	0	1	2
		F	12 (10.4)	2	3	3	2	11	1	0	7	1	0	0
	> 40	M	7 (10.3)	1	1	1	1	6	1	0	2	0	0	1
		F	11 (9.6)	1	1	2	3	8	2	2	8	0	0	0
	Not known	M	2 (2.9)	1	0	0	0	0	0	0	0	0	0	1
		F	1 (0.9)	0	0	0	0	1	0	0	0	0	0	0
	All Y	M	25 (36.8)	8	5	1	6	19	3	2	12	0	1	5
F		53 (46.1)	9	9	6	14	47	9	6	36	1	0	2	
M + F		78 (42.6)	17	14	7	20	66	12	8	48	1	1	7	
D Steady Accumulation of Understanding and Expertise	< 30	M	16 (23.5)	3	3	2	9	15	8	1	7	0	0	3
		F	34 (29.6)	5	6	5	22	31	7	2	15	0	0	0
	30-39	M	8 (11.8)	3	1	0	1	6	3	3	3	0	0	1
		F	8 (7.0)	0	0	2	4	5	2	1	3	0	0	2
	> 40	M	6 (8.8)	1	2	1	2	5	3	0	2	0	0	1
		F	8 (7.0)	1	1	1	6	7	2	0	5	0	1	2
	Not known	M	0 (0.0)	0	0	0	0	0	0	0	0	0	0	0
		F	2 (1.7)	0	0	0	2	2	0	0	0	0	0	0
	All D	M	30 (44.1)	7	6	3	12	26	14	4	12	0	0	5
F		52 (45.2)	6	7	8	34	45	11	3	23	0	1	3	
M + F		82 (44.8)	13	13	11	46	71	25	7	35	0	1	8	
N Understanding and Practices Largely Unchanged.	< 30	M	5 (7.4)	1	0	0	2	3	0	1	3	0	0	0
		F	6 (5.2)	0	0	0	1	3	0	1	0	0	0	0
	30-39	M	5 (7.4)	0	0	0	0	3	0	0	0	0	0	0
		F	4 (3.5)	1	1	1	0	2	2	0	0	0	0	0
	> 40	M	3 (4.4)	2	1	1	0	1	0	2	1	0	0	0
		F	0 (0.0)	0	0	0	0	0	0	0	0	0	0	0
	All N	M	13 (19.1)	3	1	1	2	7	0	3	4	0	0	0
		F	10 (8.7)	1	1	1	1	5	2	1	0	0	0	0
		M + F	23 (12.6)	4	2	2	3	12	2	4	4	0	0	0
All Memoirs	All	M	68 (37.2)	18	12	5	20	52	17	9	28	0	1	10
		F	115 (62.8)	16	17	15	49	99	22	10	59	1	1	5
		M + F	183 (100)	34	28	20	69	151	39	19	87	1	2	15

## **C: INTER-GROUP DIFFERENCES**

To this point, the memoirs of trainee teachers have been treated as an homogeneous group, with common themes emerging amidst the predictable diversity of human responses. Table 6 displays data according to the nature of the change experience, age group and gender of trainees, thus enabling a search for differences across the groups. It displays the frequency with which a particular factor was mentioned by trainees as being influential in changing their practical theory of teaching. The three major categories of change experience defined in Chapter Four—Y: significant change (accommodation), D: steady development (assimilation), and N: no change (the 'preservers' or the 'resistors')—are repeated in this table. Within each section, subdivisions show data from each of the age groups while distinguishing between the responses of men and women.

### **(a) Nature of change experience**

In Table 7, the number of responses for each category of factor influencing theory change is separated into the change category of Y, D or N and expressed as a percentage of the total number of trainee teachers responding.

Factors (i) and (j) appear to have had little influence on the change experience of trainee teachers in each category, and responses in (k) are so personal and idiosyncratic as to confound pattern making. For other factors, percentages in the Y and D categories (which are roughly equivalent proportions of the group overall) suggest some interesting variations in specific categories.



TABLE 7: FACTORS INFLUENCING THEORY CHANGE, BY CHANGE CATEGORY.

Factors Mentioned in Memoirs	Y 42.6% of all participants (n = 183)	D 44.8% of all participants (n = 183)	N 12.6% of all participants (n = 183)
(a) Own schooling	9.3	7.1	2.2
(b) Students' needs	7.0	7.1	1.1
(c) Mentor or guest lecturer	3.8	6.0	1.1
(d) Colleagues' influence	10.9	25.1	1.6
(e) Formal studies	36.1	38.8	6.6
(f) Theory or theorist	6.6	13.7	1.1
(g) Field experience supervisors	4.8	3.8	2.2
(h) Classroom experience	26.2	19.1	2.2
(i) Expectations of school	0.5	0	0
(j) Frame factors in school	0.5	0.5	0
(k) Other	3.8	4.8	0

The same broad proportions are to be seen for some factors, notably (a) with a slightly higher influence attributed to own school experience for Y, (b) with the N group somewhat less influenced by students' needs (suggesting, perhaps, a stronger concern with teacher activity), and (e) with its proportions for Y and D very close to the model, but N predictably less impressed with new theory. The data for the remaining factors show an interesting set of departures from the expected pattern, as Figure 1 shows:

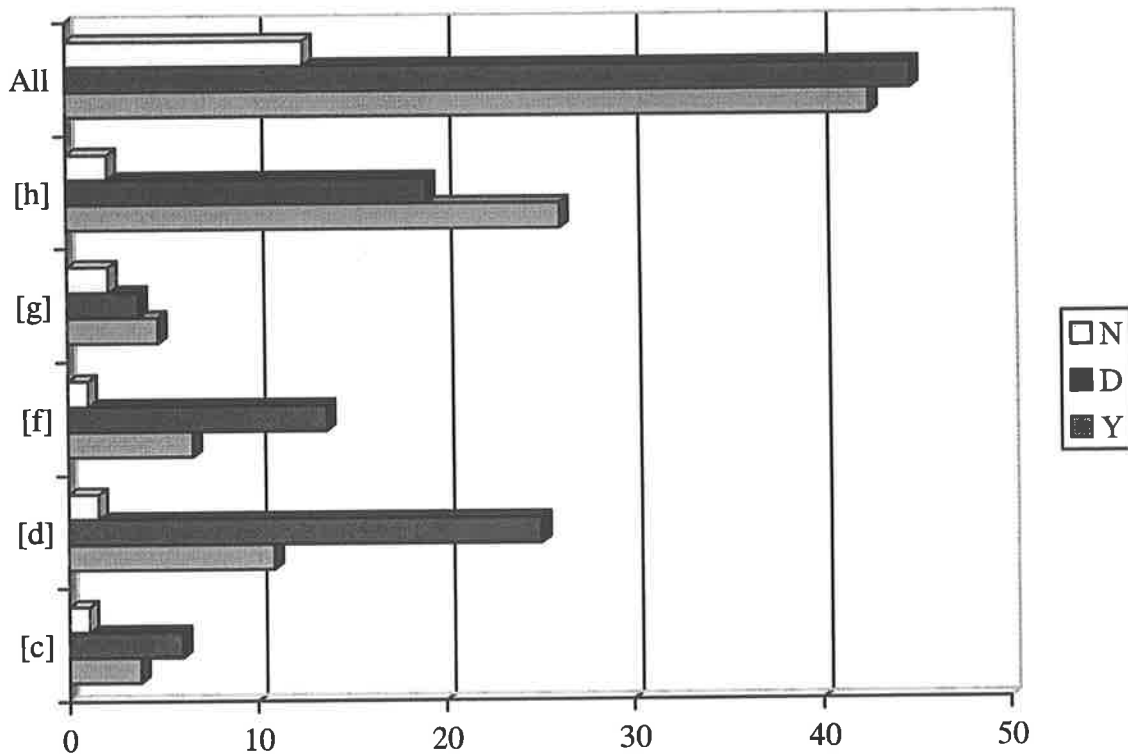


FIGURE 1: VARIATIONS FROM PATTERN OF TOTAL NUMBERS IN EACH CATEGORY, FOR SELECTED FACTORS.

The 'All' group depicts the relative percentages of trainees in the Y, D and N groups. It might be the pattern if there were to be uniformity across all categories in the three groups of change experience. The results depicted for (c), (d), (f), (g) and (h) suggest departures from what might have been anticipated. Though the numbers are small for (c), the D group seem to be more interested in the influence of a mentor or guest lecturer than their peers. The tendency is more strongly apparent for both (d) and (f), prompting the view that 'assimilators' may value more highly the availability of new ideas from a range of sources than 'accommodators' or 'resistors'. On the other hand, the higher proportion of trainees in the Y category referring to (h), the impact of field experience—coupled with the descriptions of surprise and shock in the first placement—suggests that theory for these people must be interpreted through the (sometimes harsh) realities of the classroom.

**(b) Age:**

After discounting the responses of five trainee teachers who could not be allocated to an age group, the others were totalled for each group and expressed as a percentage of that group, in order to establish comparable age profiles. The results are displayed in Table 8.

TABLE 8: FACTORS INFLUENCING THEORY CHANGE, BY AGE GROUP.

Factors Mentioned in Memoirs	< 30	30 – 39	> 40
	% of all < 30 n = 99	% of all 30-39 n = 44	% of all > 40 n = 35
(a) Own schooling	19.2	18.2	17.1
(b) Students' needs	16.2	15.9	17.1
(c) Mentor or guest lecturer	8.1	13.6	17.1
(d) Colleagues' influence	46.5	20.5	34.3
(e) Formal studies	86.9	75.0	77.1
(f) Theory or theorist	22.2	20.5	22.9
(g) Field experience supervisors	10.1	11.4	11.4
(h) Classroom experience	50.5	43.2	51.4
(i) Expectations of school	0	1.0	0
(j) Frame factors in school	0	1.0	2.9
(k) Other	6.1	11.4	11.4

It can be seen that only slight variations exist between age-based responses to most categories of change influence, although results for (c) might suggest a tendency for older trainees to be more influenced by mentors or guest lecturers—possibly because expert opinions brought them in touch with more recent behaviour patterns in schools.

Some differences emerged, however, in items (d), (e), and (h) which, as has been previously noticed, are the dominant categories for change influence. In (d), the percentage of trainees

identifying colleagues as a resource was higher in the < 30 group than in the > 40 group, and much higher than in the 30–39 group. For (e), too, while the range was smaller, there were similar variations. Again, in (h) trainees in the 30–39 age group referred less frequently to field experience as a change influence, possibly because a number in this group were upgrading qualifications to support an existing career in music teaching or tertiary education.

**(c) Gender:**

Total references to change influences were separated into male and female responses and expressed as a percentage of all men and all women respectively. The results are displayed in Table 9. It can be seen that men exhibit a change-influence profile somewhat different from that of the women.

This might be the area of greatest difference between groups. Women record a higher percentage of references in categories dealing with mentors, colleagues, formal studies and classroom experience, whereas men have a higher percentage of references to their own schooling, students' needs, a particular theory or theorist, and field experience supervision. Nevertheless, references to the influence of formal studies remain high, and field experience is seen as significant.

It seems possible that some differences exist between the preferred paths to pedagogic change of male and female trainee teachers.

TABLE 9: FACTORS INFLUENCING THEORY CHANGE, BY GENDER.

Factors Mentioned in Memoirs	Men (n = 68)		Women (n = 115)	
	Number of references	% of all men	Number of references	% of all women
(a) Own schooling	18	26.5	16	13.9
(b) Students' needs	12	17.6	17	14.8
(c) Mentor or guest lecturer	5	7.4	15	13.0
(d) Colleagues' influence	20	29.4	49	42.6
(e) Formal studies	52	76.5	99	86.1
(f) Theory or theorist	17	25.0	22	19.1
(g) Field experience supervisors	9	13.2	10	8.7
(h) Classroom experience	28	41.2	59	51.3
(i) Expectations of school	0	0	1	0.9
(j) Frame factors in school	1	1.5	1	0.9
(k) Other	10	14.7	5	4.3

#### (d) Subject specialization

A closer study was undertaken of responses from the 47 trainee teachers specializing in English and the 54 specializing in mathematics and/or science. Again, total references for each category of change influences were separated into the responses of English or mathematics and/or science specialists and expressed as a percentage of all English and all mathematics/science respectively.

The results are displayed in Figure 2. It can be seen that English specialists exhibit a change-influence profile somewhat different from that of the mathematics/science specialists.

Again, the overall pattern is repeated, with colleagues, the course of study and field experience being dominant. Some subject-related variations may apply, with English teachers

recording somewhat higher percentages than mathematics and/or science teachers in the areas of (b) students' needs, (d) influence of colleagues, (f) particular theory or theorist, and (h) field experience.

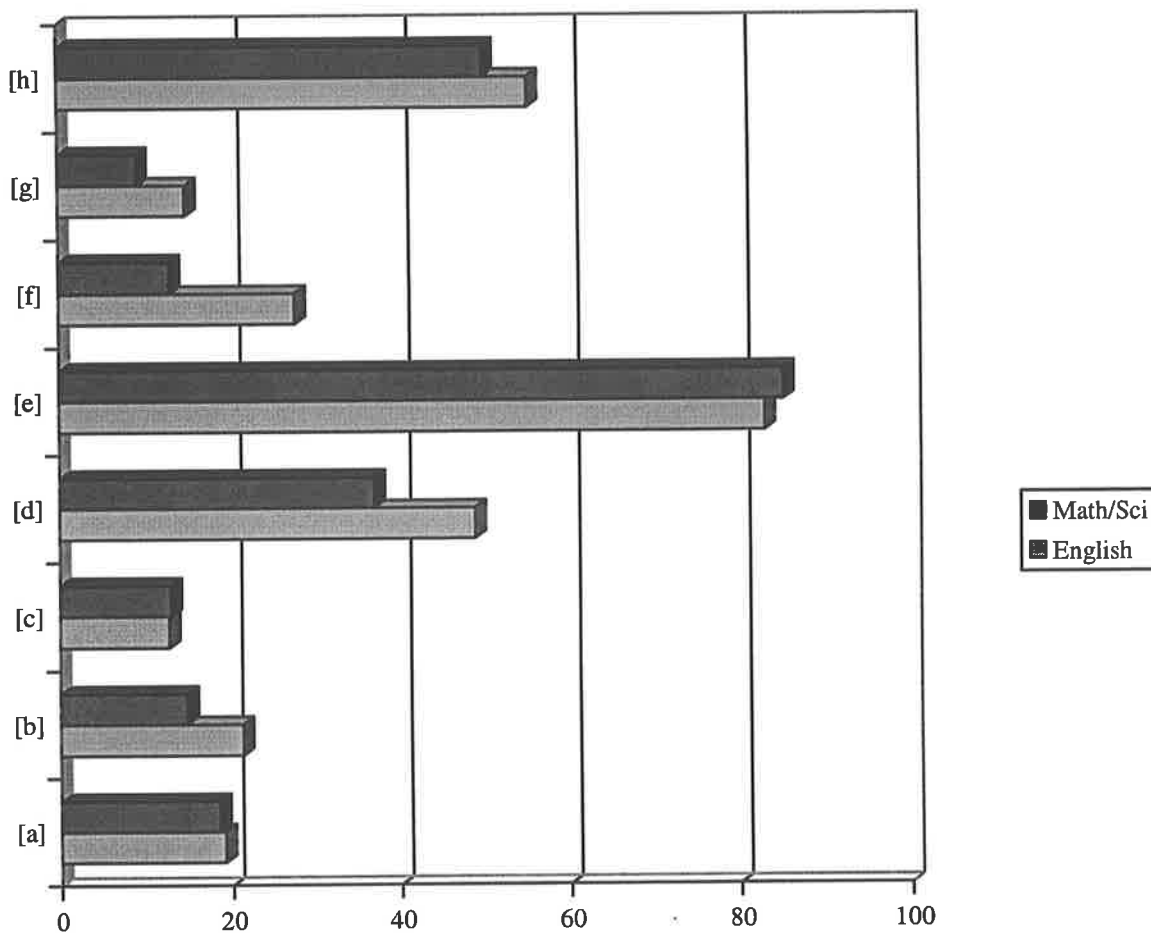


FIGURE 2: VARIATIONS BETWEEN ENGLISH AND MATHEMATICS/SCIENCE RESPONSES, FOR CHANGE FACTORS (a)–(h)

## D: MAJOR THEMES EMERGING FROM THIS CHAPTER

### 1. BRIDGES

One of the strongest early impressions of trainees' experience of pedagogic change is the range of influences that have shaped individual responses—a range that entices one to see the change process as a collection of separate, idiosyncratic and perhaps unique experiences. This

is another useful reminder to administrators that no single approach to pedagogic change can meet all the needs of all participants.

Nevertheless, it is possible to discern some patterns amidst the rich diversity. For example, the analysis has suggested that factors valued by 'accommodators' are likely to be different from those valued by 'assimilators'. There are suggestions, too, that different age groups may attach different measures of efficacy to certain influences; note for example the smaller than anticipated number of trainees in the 30 – 39 age group who saw merit in discussions with peers. Then again, different patterns seemed to apply to men and women, and to English teachers as opposed to those who specialized in mathematics and/or science. That is to say, if it is impossible—as is most likely—to provide an individualized program of professional learning for each participant, then groups linked by common subject interests, age group, gender, and/or response to change might become the focus for certain stages of differentiated professional learning. It seems inevitable, too, that in secondary schools these groups are highly likely to be the subject department, where the head of that department is probably best qualified and most appropriate to be the change leader.

Some elements would appear to be mandatory, however.

*An alternative theory.* Of all the 160 trainees coded as Y or D, 85.6% nominated their program of study as one of the important influences in their professional development. They indicated that formal study presented concepts and processes that were unlikely to have presented themselves unprompted. Without new ideas, the existing practical theory would have remained unchallenged, but study led to a dramatic expansion and intensification of understanding. Furthermore, the confrontation between new and old ideas prompted critical reflection on their own teaching. The availability of an alternative theory might, therefore, be the single largest component of pedagogic change.

**Context of practice.** Almost 52% of the 'accommodators' and 'assimilators' described their field experience as an important factor. It seems that, for them, the classroom was the crucible in which theory became urgently relevant, driving them back to textbooks and tutorial discussions with a heightened awareness of the tight links between theory and practice. The fact that "theory" is often used in a teaching context in a pejorative sense reminds administrators that theory only becomes fully meaningful when put to use in the classroom. Meaningful use of theoretical knowledge might, therefore, be another important component of pedagogic change.

**Peer support.** Another theme dominant in trainees' memoirs is the value of working in peer support groups. On one hand, the responsibility for presenting necessary information to one's peers has obviously provoked efficient learning, enhanced group planning, and intensified the motivation to hone presentation skills. On the other hand, observing peers at work brought a diversity of perspectives and styles, thus augmenting the teaching repertoire and offering models to be discussed, and emulated or rejected as the case may be. While many applauded the peer group responsibilities, a few (often men in the 'resistor' category who taught mathematics and/or science) were critical of peer-based learning. It is suggested therefore, (albeit with some caution) that a small group of peers might be the optimal group for professional learning.

## 2. BARRICADES

**Existing theory.** For 'accommodators' and 'resistors', the most formidable barrier—inferred by a reader of the memoirs rather than articulated by the trainees themselves—against changing a practical theory of teaching is the existing theory itself. Well established, as comfortable as an old glove, and with roots stretching back to childhood, the existing practical theory of teaching is robust and, in many instances, still considered effective. It is most



readily seen in operation with the 'resistors' who were described as 'defenders of the faith' in Chapter Four where the old advice, 'If it ain't broke, don't fix it', seems to apply. The 'accommodators', on the other hand, seem able to overcome the barrier. As the new idea grows in relevance and power, the sense of dislocation typical of accommodative learning appears to diminish and the impact of the old theory wanes. Establishing the new theory requires time, encouragement and support—and sometimes a counter-attack by the old theory has to be resisted—but change can eventually be achieved.

**School culture.** Trainees are able to point out that one major barrier was incompatibility between the theory of teaching promoted in the Graduate School of Education and the circumstances prevailing in the field experience schools. They acknowledge that their supervising teachers are hard pressed; applying constructivist principles is a demanding task, and the managerial emphasis on documentation and accountability generates much additional work and angst. Furthermore, student apathy and misbehaviour restrict opportunities, for experienced and trainee teachers alike, to experiment with innovative classroom methodologies. Nevertheless, trainees sense (and report in their memoirs) a school climate that is hostile to change. They write with insight of entrenched teachers who have stopped learning. They are critical of teachers who regard students with disdain, or who hold outmoded and restricted perceptions of knowledge. Using their own words rather than text book terminology, they describe schools where experienced teachers protect a traditional collective code and thereby cement norms of teaching and learning in the school. In doing so, they create student expectations and/or defiance, and impede the application of modern approaches to learning and assessment.

Thus, trainee teachers identify one of the potent mechanisms blocking their adoption of an innovative pedagogy. At the same time, they direct attention to schools where it is not merely

supervisors' individual practical theories, but the prevailing collective code that must be revised.

### 3. THE ROLE OF AN EXISTING PRACTICAL THEORY

Trainee teachers provided striking confirmation that they brought their existing practical theory of teaching—their 'private, integrated, but ever-changing system of knowledge, experience and values' about teaching (Handal & Lauvas, 1987, p. 10)—to the study they were about to undertake. As sources of that practical theory, they pointed to such factors as their own primary and secondary schooling, to teachers they liked or loathed, to legendary teachers in their family, to their own experiences as swimming teachers or basketball coaches, or to military training. It is also clear from trainees' memoirs that the new ideas posed in their lectures and tutorials had to be approached via what they already knew, for new information only becomes meaningful when prior knowledge is recalled and linked with the new information (Marzano et al, 1997). That is to say, the current version of the practical theory was, indeed, the most potent influence on each trainee's capacity to deal with a new paradigm for teaching and learning. As would be predicted from Sotto's comment that the human brain 'processes information in terms of the schemata it already possesses' (1994, p. 73), the learning responses could be described as follows:

- a. When new ideas about teaching were highly compatible with the current practical theory, the trainee was able to make sense of the new information, link it to what was already known, and adjust the practical theory accordingly, often by assimilation.
- b. When the new ideas were very different from the current practical theory, the trainee was hard pressed to make sense of them. In that situation, the trainee either rejected the new ideas outright, or restructured the practical theory to take account of the new information—resistance or accommodation was the outcome.

- c. When the difference between the new ideas and the current practical theory was moderate, the uncertainty thus created might have led back to assimilation, accommodation or resistance—or indeed to the error of equating the new information with what already existed, the 'I do that now' response.

Thus trainee teachers demonstrated in their memoirs that the existing practical theory was the chief determinant of the nature and extent of the learning, even though factors such as personality traits, context, levels of motivation, and other priorities unrelated to teaching might help shape the individual learning experience.

It might be noted that each interaction between the current version of a practical theory and a new idea is likely to be unique. There can be no certainty, therefore, that trainees will treat the next innovation they face in the same way as they reported in this study. Indeed, there is the possibility that the experience described in these memoirs has been so formative that it will induce resistance or severe accommodation in future changes. Then again, scepticism may be required if the gap between theory and innovation is moderate. Self-reports from a comfortable 'assimilator' or a 'preserver'—though offered with genuine sincerity—may cover serious misunderstanding of the new ideas.

In terms of the change principles proposed at the end of Chapter Two, this chapter emphasizes a number of points:

- i. Pedagogic change is the result of learning to apply new knowledge and skills.
- ii. The dominant mode of learning may be accommodation or assimilation. Some people may not be able to acquire the new knowledge or skills in the available time and/or prevailing context.

- iii. This chapter confirms the suggestion made at the end of Chapter Four that the process of gaining new understanding and skills for teaching is likely to require the core activities of confronting an alternative theory of teaching, making meaningful use of the new theory in a classroom, and working closely with peers to provide mutual support throughout the process.
- iv. The refining or revising of an individual practical theory is even more complex than might be first thought. Amid all the diverse elements of an essentially personal experience, any patterns that do emerge are likely to blend the influences of age, gender, subject specialization and, most importantly, pre-existing practical theory into a kaleidoscopic set of change strategies. This is likely to be a stern challenge for change leaders.
- v. Trainee teachers became acutely aware of the influence (for good or ill) of school climate and teachers' collective code. Their perceptions add weight to the major theme of the following chapter.

In Chapter Seven, teachers and secondary students comment on the bridges and barricades they encountered during the search for revised personal practical theories and collective codes.

# 7

## Renovating the Collective Code

Earlier chapters have shown that individual practical theories are robust and resilient. They have also suggested some of the strategies that might promote amendments to practical theories of teaching and learning. It has been noted, too, that school-wide innovation can be thwarted if variations amongst individual theories are too great. Accordingly, in this chapter attention returns to the schools at work in order to identify factors that might promote—or inhibit—the alignment of individual revisions of practical theories into a new shared code for implementing different learning approaches.

Part A describes both the facilitating and the blocking factors identified by teachers of English, mathematics and science. Part B reports the views of the heads of those same subject departments, while Part C deals with the views of managers of change. Students selected from Years Eight to Twelve in the same schools are the focus for Part D. In Part E connections are made between themes emerging in this chapter and the principles proposed at the end of Chapter Two.

### A. CLASSROOM TEACHERS

Initially, an attempt was made to sort the responses of experienced teachers into the same categories as were used for classifying the comments of trainee teachers. Some interesting distinctions emerged.

Whereas trainees attributed high levels of influence to formal study (82.5%), field experience (47.5%) and tutorial group work (37.7%), experienced teachers gave greatest emphasis to students' needs—all of the 18 teachers talked about this aspect at some point in their interview. Furthermore, school-based issues, which were scarcely mentioned by trainees, became a dominant topic with experienced teachers. Aspects of the school's context and procedures were discussed in 10 of the interviews (55.6%) and leadership issues were raised in 15 (83.3%). The fact that 14 experienced teachers (77.8%) expressed a preference for working in small groups of colleagues suggests that people in schools may value collegiality even more highly than trainees do.

It is unsafe, however, to draw too many inferences about factors that facilitate or block innovation from a direct comparison between the responses of 18 experienced teachers and 183 trainee teachers. In fact, it became more useful to seek commonalities between what the experienced teachers said and the guidelines for change proposed at the end of Chapter Two. The comments that follow will focus, therefore, on topics identified in the transcripts of interviews with experienced teachers:

1. Perceived worth of the innovation;
2. Change management strategies;
3. Provision of learning opportunities;
4. Role of the proximate group;
5. Leadership;
6. Adjustments to school structures and procedures;
7. Student involvement;
8. Concurrent innovations.

Each topic will be taken in turn, with the earlier paragraphs of each section concentrating on elements deemed to promote change, while later paragraphs, which summarize the blocking agents, will be seen in some instances to display the converse of factors mentioned earlier.

## 1. PERCEIVED WORTH OF THE INNOVATION

While risking the assertion of a truism, the record should show the positive influence of an acceptable—and accepted—proposal for change. In Transcript 3, for example, the advocate for inclusive teaching strategies indicates that her support for the adoption of the Middle Years Program was related to her perception that its Approaches to Learning component not only seemed 'a very natural step to the learning support program' but also gave it structural validity by placing 'effective and explicit teaching at the core of our curriculum officially'. Similarly, the mathematics teacher, whose experience with graphics calculators had alerted him to technology-driven changes to the fundamental goals of mathematics teaching, was able to see that *Dimensions of Learning* would 'reinforce and highlight for us the areas in which we should be working within a classroom situation' (Transcript 47). The science teacher, too, who had first carefully appraised *Dimensions of Learning*, was able to commit to the project because 'there were things that resonated, that matched what I wanted to do' and also because 'it helps to explain to parents what the job of teaching is' (Transcript 17). Often it was the broad sweep of the new idea that appealed, but occasionally it was the surprising or previously only partly-comprehended insight that drew people into the innovation. Such was the case with the mathematics teacher whose attention was caught by the discussion of different categories of knowledge and their implications for teaching. He was particularly interested in the distinction carefully drawn by *Dimensions of Learning* between procedural and declarative knowledge: 'I think perhaps I always knew it was different, but I don't think I'd ever really espoused to the kids how different it was' (Transcript 20).

While a satisfactory alternative theory of teaching is unlikely to be all that is sufficient for achieving pedagogic change, the indications are that it is certainly necessary and, indeed, the basis on which pedagogic innovation will occur. As a mathematics teacher put it, 'I think if you are looking at change, you have to be convinced that the change is obviously for the better, and that the students are going to be better for having this change implemented within the educational structure' (Transcript 47).

Earlier paragraphs have pointed to examples of teachers coping more smoothly with innovations when they perceived educational, administrative or personal advantages in their adoption. The converse, however, may apply. For example, when the classroom teachers who were discussed in the N Category of Part A of Chapter Five either resisted a new pedagogy or failed to appreciate the potential gains from novel ideas, they were unable to participate in change.

Significantly, too, it became evident at the school espousing *Dimensions of Learning* that some who had been supportive or even enthusiastic about one innovation might judge another to be inappropriate and approach it with reluctance and suspicion. A mathematics teacher who supported *Dimensions of Learning* was strong in her professional criticism of the mathematics component of the Middle Years Program that was currently being characterized by school leaders as a highly compatible complement to the other innovation:

I can't see any value in the MYP ... to me as a maths teacher, it's actually retrograde ... I don't understand why we're doing it ... It's just been a hassle and not particularly good mathematics in terms of what we try and contribute. (Transcript 11)

She is equally vehement in her objection to what she sees as the reactionary approach to mathematics in Years Eleven and Twelve:



It's good mathematics aimed at university entry, but it's what we were teaching twenty years ago, so it's more of, 'Open the text book. Believe that the theorem is true and just apply it to this set of numbers, that set of numbers and that set of numbers. Hey! You got the right answer. Well done!' (Transcript 11)

The requirement to contribute to an Interdisciplinary Unit (IDU) adds administrative issues to her list of frustrating impositions:

We have to teach these interdisciplinary units ... Every time, the other faculties say, 'What can maths do?' and the answer from the other faculties is, 'You could do the statistics'. It's like, 'Well, hang on, guys. We have to do three IDUs with Year Eights. Are we supposed to do statistics three times? To us, it's only a three-week unit and it fits into a Year Eight course that covers all sorts of different topics. So I am yet to be convinced that having interdisciplinary units at Year Eight level improves the sophistication of Year Eight students or has the value that it's supposed to have. (Transcript 11)

Doubts about the intrinsic value of an innovation, or its timeliness or, indeed, its feasibility stand as significant obstacles to its implementation. Other teachers expressed the same reservations. A slightly more guarded comment from a science teacher echoes basic concerns:

One focus I've always tried to hold is to concentrate on catering for the needs of students. Whether they think the MYP is going to do that and give the students an opportunity to go this way, or whether that will work, we will probably see in the next few years, I guess. (Transcript 28)

Another science teacher told how he had helped pioneer in South Australia approaches to the teaching of biology that had emphasized 'practical skills, the actual process, getting kids to do experiments, analyze data' (Transcript 17). Now, he sees a course that—years ahead of time—had embodied some of the goals of twenty-first century learning being supplanted by (in his view) an outmoded conceptualization of science education:

I really believe that there were elements of the old biology course that led the world, and I mean led the world, in terms of best practice ... We in South Australia were doing that stuff better than anyone else was anywhere I ever saw with any of the IB conferences I went to ... The new syllabus has moved away from that and gone back to a 'safer' and 'more comfortable' one and so that's a bit of a disappointment. (Transcript 17)

One final example—from an English teacher's view-point on Information Technology skills—may serve to underline the detrimental influence of negative perceptions of an innovation program:

I think the skills issue with IT is a bit of a—not furphy—but I think it's a bit overstated ... I don't think it's that difficult to acquire the skills, and in fact I think a lot of the time you don't necessarily need every detail of the skill ... I see a teacher's role as ... causing students to make transitions from data to information, information to knowledge, and knowledge to wisdom ... I was teaching computing for the last couple of years ... and increasingly I found there was no way I could keep up with every piece of software, but what I did have that the students didn't have was some sense of an overview, so that if we were, for example, talking about multimedia, I was able to break up the tasks ... and say ... you are the people who can develop the skills in using animation in this program, but I'm going to talk to you about how animation might fit within our text, within our design, and I'm the person that will have a conversation with you about what you have just done. (Transcript 22)

It is likely that this informed and thoughtful view of advanced computer use in English would chafe at the one-off introductions to basic software that were available as professional development in IT at the time in that school.

Perceived merit, it appears, will be one of the crucial determinants of pedagogic change.

## 2. CHANGE MANAGEMENT STRATEGIES

As he reflected on the way his own teaching had changed, a science teacher identified influences that led him to put the text book aside and that might, more generally, also stand as principles for the management of pedagogic change:

I think ... the things that have altered my approach to teaching have been the nature of the kids that come into the room, and the fact that over time there has been a change in society's values and norms and the sort of culture that the students experience. I guess we are seeing a little bit of that happening with kids having enormous access to the Internet, and therefore they will come into the classroom with certain skills, certain attitudes, certain needs. (Transcript 24)

Societal change and the consequent development of new priorities for students' learning are starting points recommended by a number of other teachers, too. One argued for a deliberate shift of focus from teachers and content to students and what they would know as an outcome of a particular course (Transcript 14). Another urged that the very first step should be to identify the needs of both the students and the community in which they lived (Transcript 2). Yet another believed that the IT revolution was so pervasive that teachers and students should be 'forced' to address the important challenges being posed by technology (Transcript 22). Indeed, it was the need to confront challenges that led another teacher to welcome the tightly administered guidelines of the IBO as support for school-based procedures (Transcript 35). From another perspective, there was the example quoted extensively in Chapter Five but relevant here, too, where the science teacher returning to the classroom after five years in business and adult education was obliged by students' attitudes and expectations to refashion his teaching style (Transcript 12).

Experienced teachers seem to be telling us that one of the more efficacious entry points to pedagogic change is a careful assessment both of broader changes in society and of their

impact on students' learning needs. They also have clear ideas about the distinct 'steps' that need to be taken before the understandings thus obtained can be converted into the realities of classroom life (Transcript 47). There should be (another teacher suggests) rigorous and early examination of all the details of the proposed innovation, lest some unpleasant surprises emerge at a later stage:

*What advice would you give to people bringing innovation to a school?*

Well, I would tell them to research the demands very thoroughly first, because it's only very slowly being revealed, for example, what the demands of the Middle Years Program are. For example, each student will have to have a personal project at the end of Year Ten, and they will have to have a mentor who must be a teacher, and the teacher will have to spend five hours out of class time mentoring [each] student. So that means each teacher will have five or six students in addition to having the senior IB students and perhaps being mentors to them as well. I mean there just really isn't enough time to do it ... And I don't know that this was known when we took [the MYP] on board. (Transcript 46)

It is also valuable for teachers to share in any decision to take up an innovation that they will have to implement:

*Why do you think that change worked?*

Firstly, because everyone was involved. It was a commitment to decisions that had been reached jointly ... Virtually everybody had been part of the discussion ... People had argued for and against, and different models had been debated, but eventually the vast majority of the staff put their weight behind the model, and I think they were convinced of the value of moving to a less adversarial style [of student management]. (Transcript 19)

The topic of ownership often appears in discussions of innovation. In Transcript 19, a useful definition of what teachers mean when they speak of owning a change may have been provided. Beneath the language of shared decision making and perceived educational merit,

however, may lie the subtext of discussion, argument and debate that suggests a process of wrestling with new ideas and emerging commitment based on the growth of understanding.

In eight separate transcripts, teachers acknowledged that new ideas were necessary precursors to change. The process was seen as 'familiarize ... then implement' (Transcript 47). One teacher welcomed ideas that would 'provoke thinking outside the comfort zone' (Transcript 12). The new ideas might come from observing others at work, or sharing resources, reading journal articles or searching the web (Transcript 26) or being challenged by presentations (Transcript 14). There was support, too, for in-house courses where colleagues learnt together:

It was a big thing ... We used to have a lot of afternoon sessions that different people would take on different activities ... We ran courses on teaching kids who had English as a second language and things like that. There were a lot of things from books and things like that where you try and incorporate kids from different backgrounds and kids of different understanding levels or academic levels. (Transcript 28)

Learning sessions that were voluntary, and took on the ambience of post-graduate seminars—a combination of intellectual challenge and collegiality—were well regarded:

I can still remember, and remember how worthwhile it was, when we had those *Dimensions of Learning* workshops. You put yourself in a workshop and you met four or five times. Essentially we did homework because you were instructed that you were going to present this, you were going to present that, and it gave me, at least, anyway, a chance to really have a look at that program ... carefully over an extended period of time so we could see where that change could actually help us in our teaching. (Transcript 20)

These small professional learning groups appear to be the mode preferred by teachers, perhaps because they understand that 'being an innovative teacher by yourself is incredibly difficult' (Transcript 17), and that such groups provide 'a safe environment where I could test out that sort of idea' (Transcript 11) or where a teacher could use a bit of 'trial and error'

(Transcript 28). Small groups are also valued because they contribute to the building of shared codes of learning, and validate (perhaps, license) the experimentation and risk taking implicit in the previous sentence. It might be observed, too, that mentoring within the small group by a practising teacher—preferably from the staff of the school and possessing professional credibility—was preferred to external intervention (Transcripts 17, 3, 12 and 20). There was also recognition that major changes in pedagogy could not be achieved in a short time span: 'it's a slow process' (Transcript 35); innovation requires a consolidation phase during which new knowledge and new skills are applied, or as one teacher put it, 'You need to give it time to bed down' (Transcript 20).

To this point, teachers have identified—perhaps in declining degrees of emphasis—the steps towards pedagogic change as introduction, investigation, decision-making, implementation and consolidation. One lone, but persuasive voice argued that high priority be given to the inescapable practicalities of assessment and reporting:

[Name] has probably got as good a handle on the Middle Years Program [as anyone] as far as science is concerned, and he went to a conference at the end of last year and he basically said ... the people who know what they're talking about in this area ... say this stuff doesn't matter ... The emphasis we're putting on integrated units is not really what it's about. What it's really about is going to be ... assessment and reporting ... in terms of measuring whether the kids have got to where we think they have ... Someone said, 'What I think is important is what I assess' ... I mean if you don't put in a test what you think is important—or in your assessment program what you think is important—then I don't think you've got the critical base for teaching ... We needed to somehow complete a loop here [with *Dimensions of Learning*].

(Transcript 17)

Here, this experienced, creative but realistic teacher turns the focus onto questions of feasibility, teacher motivation and completion of task.

Other experienced teachers, however, described strategic errors which, they assert, impeded innovation.

A principle that appeared very early in the interview process was that 'you can never put a set of strategies into place in a teacher's classroom ... You must also take into account that every teacher approaches their curriculum in a different way' (Transcript 3). Perhaps it is because teaching is such an individualized yet authoritative activity, and because pedagogic change confronts such deeply held concepts and values, that teachers reject the imposition of different methodologies. As a science teacher put it:

Barriers to change? The thing that I find is that—well, it's more of a thou shalt—that people aren't given an opportunity to question and internalize it from their point of view ... It's very much a top-down—this decision has been made, therefore it's going to be your job to implement it ... and the reaction I got was, 'Well, hold on. No, we won't. You've got to tell us why' ... So we're saying ... you just can't come down ... it needs to filter right down ... It needs to come down here and be discussed ... so it's not just there to there to there, it's top, middle, talk with bottom, go back to middle, discuss it again, then back to top—it's dynamic rather than just top to bottom. (Transcript 12)

He clearly recognizes and accepts the hierarchical nature of secondary schools and the concentration of ultimate decision making powers at the top of the pyramid. He is equally clear, however, that the actual implementers of change must be properly informed in order to be able to 'internalize' the new requirements.

Others shared this view. One teacher described a situation in a former appointment where the principal announced that staff members who did not attend meetings for implementing *the principal's* [necessary] change initiative would have their salaries docked. The consequences of such authoritarian leadership were unfortunate:

This sort of coercive, top down thing rendered the place almost dead in the water ... There were really good people in the school, but there was no continuity of leadership, there was no organizational memory across the different faculties and areas of teaching and learning in the school. (Transcript 22)

He concluded, aptly: 'You can't push a rope, can you!' Similarly, a science teacher acknowledges that many teachers understand that change is necessary, but the 'hard thing is how change occurs' especially when 'it is forced upon them' (Transcript 26). Again, commenting on numeracy courses she had attended (and perhaps on strategies applied to her 'resistor' colleagues), another teacher made the point:

People aren't dumb. I think, for one thing, if it's, "You will do this!" then you have them two steps behind you because they come in with the attitude—and I have seen that at numeracy courses where there has been a couple of people that you can tell were there because the school had told them to ... and sometimes it takes them a long time to think properly and sometimes they don't even come. So, it's a bit like the students. If you force them to go they mumble and grumble and, yeah, they will do it, but they're not going to enjoy it. (Transcript 14)

In some instances, there were suggestions that the processes of investigation, consultation and decision making were smokescreens for a pre-determined outcome. One teacher (a 'resistor', it should be observed) said:

We did have some PD sessions in which we listed various different things we'd like to see, but the actual—when it came to the formality of the document that was produced, we didn't have the full group together; it was done more individually, and a lot of the things were taken from other publications that, perhaps, other schools had used. (Transcript 34)

Similar doubts were raised about the authenticity of the early phases of innovation in the other school, too:



I'm not quite sure who voted for the MYP, but I don't think it was the senior staff. We did have a vote. I think a lot of people voted against it, and yet we're doing it anyway. (Transcript 11)

Teachers were inclined to draw comparisons between differing approaches to innovation they had experienced in close succession. A science teacher, for example, described the workload involved in copying practical work of her students before it was sent overseas:

We had to photocopy everything, and the high levels had sixty hours of prac, so for those who were selected I had to photocopy ... about ninety experiments ... and then, of course, they were in sleeves, so I had to take them out and take out the staples ... this sort of administrivia is just so exasperating ... I would have spent about nine hours just at the last part of it ... but there were thirteen hours in preparation after school in the week before, and that's apart from all the ongoing things you are doing. (Transcript 46)

In contrast, the time spent on *Dimensions of Learning* was deemed acceptable:

That wasn't the difficult one to take on board at all—no—because it made sense from the start and reinforced a lot of good things that we were doing and, you know, strengthened our resolve to continue, and so we found new pathways. (Transcript 46)

Making a similar comparison, a mathematics teacher reported:

I just don't think we've been given the opportunity to get anyway near the time to actually be comfortable with [the MYP] and to actually go with it ... it's just been too rushed ... whereas [for *Dimensions of Learning*] we had all those meetings ... every staff member, and in small groups with [the project leader] ... and go and do your homework. We had one full day of PD [for MYP] and a couple of half mornings since, and I just don't think it has worked. I mean people are busy enough as it is, and because really we don't see that we own it, I think it's struggling. (Transcript 20)

Experienced teachers appear to be saying that worthy, but complex, initiatives may fail if change management strategies are inadequate, that is to say:

- if the stages of introduction and investigation are flawed or incomplete;
- if decision making is not open and honest;
- if implementation is hasty and not founded on teachers' thorough understanding and acceptance;
- if consolidation is not supported;
- if progress is not evaluated.

### 3. PROVISION OF LEARNING OPPORTUNITIES

If, indeed, learning is 'the process through which experience causes permanent change in knowledge or behaviour' (Woolfolk, 2001, p. 596), it seems essential that projects aimed at altering both teachers' understanding of their educative role and their teaching strategies should be conceptualized as individual and institutional learning. Teachers interviewed during this investigation did not use the word 'learning' to describe their experiences, but they did speak of sitting down and discussing 'how we teach and why we are teaching in that way ... sharing teaching practice' (Transcript 2) or of sitting down and talking to people and saying, 'These are some of the [new] ideas. How do they fit into your curriculum area?' (Transcript 3). The notions of informal conversations about refinements or extensions of methodology are typical of teachers' preferences. They may not, however, cover more than a narrow band of requirements, for these teachers—like the trainee teachers described in Chapter Four—could be distributed along an involvement continuum from rejection to enthusiastic commitment. It is likely, therefore, that the nature of the learning process suited to enthusiastic supporters of an innovation will differ from the approach that better meets the needs of those who are less committed. Such appears to be the case with the teachers who took part in this study.

**Assimilators.** The teachers in the D Category (the group who described their change experience as predominantly assimilation) presented in interview as forward-looking professionals whose prime concern was for the successful learning of their students, and who were confident of their ability to cope with new ideas. Typical of their attitude was the English teacher who asserted:

I have a philosophy that to be a good school teacher you have to be open to change, and you can never say, 'Well, I don't need to change anymore', and I try to have each year some professional development. (Transcript 21)

She then pointed to an external course in film study, regular reading of her subject association's journal, visits to *school.com* and continuing discussions with colleagues and her head of department as conduits for maintaining the steady flow of new ideas that she prized. Furthermore, she was alert to feedback from her students, notably when she read her Year Nine students' letters of thanks to a visiting poet who had obviously impressed them:

I got them to write a letter to him. I've got 28 Year Nines and I would think 26 said, 'You told us, you helped us, you showed us what to do. You didn't just walk in and say, "I want a poem", which is what normally happens'. So, I thought, 'Well, while I'm providing models for almost everything else, I'm still not doing it for poetry', so with my Year Eights I have done it quite differently—you think you've got it covered, and then the kids will tell you that you haven't. (Transcript 21)

References to the continuing search for new ideas recur in other transcripts in the D Category. The presence of two school colleagues at an external course in teaching middle school mathematics was seen as especially valuable (Transcript 14). A science teacher attributed his constant refining of teaching approaches to multiple sources of new ideas: internet sites, books, his own reflection-prompting journal notes, and especially observation of, and discussions with, many colleagues (Transcript 25). Perhaps the classic description of

assimilative learning came from the English teacher whose description of his induction to a new appointment has been cited in Chapter Five. After commenting that he deliberately linked new information to what he already knew, and used the vocabulary of *Dimensions of Learning* to express his revised understanding, he continued:

... so things like complex reasoning processes, that sort of thing, I rearranged them and put them in ... Now, as I'm more familiar with just how things tick, and what's expected of me and how I sit in the school, I can look at *Dimensions of Learning* more productively and see actually what this means for my Year Eleven class, because I know what they're like. At the start of the year it was all—everything was so hypothetical, so up in the air—as an experienced teacher you sort of back off. You say, 'I just need to see what this is like before I can really understand how I am going to use this, because ultimately that's what we do—how can I use it. (Transcript 22)

With metacognitive insight, this teacher describes two phases of assimilative learning, one to make sense of novel ideas by incorporating them into what is already known, and the other to perceive how the recently reshaped theory can be applied to specific contexts. Perhaps this explains why other 'assimilators', although lacking the insight of their colleague, have emphasized the twin activities of seeking new ideas and obtaining practical hints.

Some risks, however, are attendant on the collaborative approach to assimilative learning.

Two examples—one from each school—may serve to illustrate the potential for innovations to falter, even in seemingly favourable circumstances.

One of the central activities in the Inclusive Teaching Strategies Project at School A was the publication of a resource book. Representatives from nine areas of curriculum worked in small groups to provide the first draft. Acknowledged on the title page for their contribution to the content were seventeen members of staff, one of whom reported:

I was part of that ... four years ago ... that was a big thing, too ... We first identified what skills they needed to learn in that work and then tried to write them down in some sort of order ... [The project leader] was trying to sort of actually get what we did in each of the sciences so that she could put it down to help her students. (Transcript 28)

The resulting publication is well regarded both by the staff and beyond the school's boundaries. The process that produced it was intended to heighten awareness of the special needs of all students and to share relevant strategies from existing practices, as the transcript's 'get what we did' emphasizes. In context, the process was appropriate and successful but, as students' comments suggest, it may not have influenced non-involved teachers. The inclusive strategies initiative probably should, itself, have been more inclusive, as well as presenting more strongly the basic principles that illuminated the practices that employed individual strategies. Moreover, because it encourages sharing of what already exists, the process is unlikely to transfer well to a situation that requires teachers to take up novel approaches. A more demanding innovation would seem to require heavier concentration on establishing novel ideas and making them operational.

In the second school, there was a glimpse of another difficulty. It surfaced early in the interview with a young mathematics teacher, who was explaining that the mathematics department took care to distinguish inductive from deductive reasoning. When asked about the origins of this emphasis, she replied:

I think it emerged in two ways. Firstly, it is a specific aspect of *Dimensions of Learning*. Two of those dimensions are inductive knowledge and deductive knowledge, but also it fits very well with my head [of department], and with those people I teach with, as just good practice, and so it's a bit sort of chicken and eggish. (Transcript 11, my emphasis)

Now, *Dimensions of Learning* proposes five different dimensions (or types) of thinking that are characteristic of successful learners. Dimension Three addresses the thinking that helps

learners extend and/or refine their knowledge, and offers eight specific reasoning processes that might be used as resources for extension and/or refinement. Inductive reasoning and deductive reasoning are two of the eight processes recommended as ways of promoting Dimension Three thinking. It is difficult to tell whether the emphasized clause in the quotation from Transcript 11 immediately above signals a carelessness in the use of language, or a misunderstood or idiosyncratic version of *Dimensions of Learning*. Whatever the case, there appears to be a substantial digression from the intentions of the program's authors. More importantly, a suspicion is aroused that even highly supportive and very able teachers may carry inaccurate understandings of the new theory. Such a situation, especially if repeated in a number of cases, may point to a flaw in the innovation process, rather than to individual human failure. Five similar instances will be identified in the 'assimilator' and 'resistor' segments that follow. Most significantly, there seems to be evidence for a science teacher's assertion that teachers are slow to take up innovations:

... because teachers have got to face the problem in the classroom ... try this as an analogy. It's a bit like sending poorly trained, poorly equipped troops to fight in the trenches in the First World War ... The analogy I'm offering is that the teachers are not fully prepared, they don't go in with a program or a planned series of activities. They have gone in with a half-baked idea in their own minds with a few tricks with some vague idea of the end point ... They are not properly trained. (Transcript 17)

**Accommodators.** There were four experienced teachers in the Y Category. As discussed in Chapter Five, the common factor in their interviews was the sense of challenge, sometimes crisis, that precipitated a re-examination of their own practice, followed by the adoption of a new practical theory. The severity of the situation ranged from what was inherently a structural and administrative challenge for supporting the learning of all students, to the other extreme of an intense professional and personal confrontation. The former required a

reasonably direct solution; in the other three cases, teachers were tumbled out of their 'comfort zone' (Transcript 12).

The science teacher returning to secondary schools after five years in industry and adult education is a revealing case. The need to adjust his teaching practices was urgent and insistent. His new school:

... was certainly different. It was not just, 'Here is the information. Give it to me'. It was more, 'You entertain me and you make me enjoy it'.

*Did that seem to be a crisis for you?*

For me, yes, because ... I had to re-evaluate what I was doing quite dramatically.

*What did that re-evaluation involve?*

A couple of things, I guess. First, I had to think whether I really wanted to do this ... I had to really make up my mind whether I was going to follow the secondary path again or try and look outside, which would probably mean ... going somewhere else ... and that's when I decided to stay in the secondary area ... It was obvious that what I was doing wasn't going to work so I had to change. The first question was whether I was prepared to change, and obviously I was, but then I had to figure out exactly how I was going to change to fit [the new situation], because there were still certain educational criteria that I felt needed to be addressed in terms of what we were teaching ... It was the delivery method that I had to look at ... and I was prepared to be more flexible and, I guess, take off the blinkers. (Transcript 12)

Within a year or so, he reached the school that was implementing *Dimensions of Learning*, the Middle Years Program, and Information Literacy Across the Curriculum, and found himself in a situation which offered an alternative pedagogy and the strategies to apply it. A series of steps can be discerned in this account of change. First, the teacher recognizes severe dissonance between his customary teaching approaches and the new work context. The

anxiety generated by such a high degree of disequilibrium prompts him to question his current practical theory of teaching, and when confronted with the inadequacy of the theory, is forced to decide whether to change or not. The decision is influenced by the intensity of his dilemma (in this case, student behaviour will not allow him to persevere with his existing methodology) and by non-educational factors (particularly, his unwillingness to move to another city). With the decision to change made, he must now address the question of how to bring it about. Fortunately, the new school's professional development program offers some starting points but, in the main, he has been left to deal with the difficult early stages on his own. When asked whether another person could have assisted him, he commented:

I think in this case it was more going it alone. I had people that could support me in whichever direction I chose, but I had to make the choice from the crisis that occurred.

*Would it have been helpful if there had been someone in the school who was available to talk through the options?*

Before I decided that I was going off in that direction, it could have been, but it would have had to have been somebody who could recognize where I was at the time and see what I needed, because I didn't at the time. So, it couldn't have been me going to them saying, 'Look, this is what I need', because I didn't see it. It needed to be somebody else who could come in and say, 'Look, this is what's happening' ... somebody who knew me or knew the situation—somebody, I guess, that I'd be prepared to listen to as well. If it was somebody else who came in, I may not have taken it. (Transcript 12)

The case for a trusted, tactful and perceptive mentor has been made cogently—so, too, has the case against insensitive personnel management approaches. It is interesting that the teacher looks back on his career crisis with calm understanding—'I think I'm more open to change, now'—and the recognition that there may come times when it is necessary to 'precipitate something':



It doesn't have to be World War Three, but it needs to be something to shake somebody from their comfort zone and say, 'Well, if you stay here, it's not going to work. If you're prepared to go this far, then you're going to get that much benefit out of it, while if you stay here, you're going to be left behind'. Just something to provoke and to get the person thinking outside of the routine. (Transcript 12)

A similar account of theory change is found in Transcript 47 where the mathematics teacher comes to terms with a graphics calculator. He experienced the same sense of crisis when established practices were overturned by new technology, and different priorities emerged. In a way, the decision to change was made for him as the Head of Mathematics put the calculator into his hands, but the situation was no less daunting. The difference lay in the presence of a mentor who could advise, challenge and encourage:

I had a lot of support from [the head of department]; he obviously spent a lot of time working with it himself before he introduced me to the notion and then I spent a lot of time with him, but I also did a lot of reading and jumped on the Internet ... I grabbed as many resources as I could from the Internet and then I just played and I played around with it and played around with it, and went back to people who knew more than I did and really questioned it—so, there is the first process of actually getting familiar with the calculator. (Transcript 47)

The second step was at least as important, for it coupled the newly-won calculator skills with the realization that priorities in teaching had shifted from process skills to understanding the answers they provided, and then applied that knowledge to actual units in the mathematics syllabus:

The second process was a lot more difficult and took me many, many hours and that was: 'If we're going to use this calculator in the classroom in a constructive way in which students are going to get something from it and at the same time understand their mathematics, rather than just use it as a tool to process equations or whatever, how are we going to do it? That was a far

more difficult process. The writing of units of work which enabled students to think and learn and understand about mathematics was far more difficult. That, I found, took me many, many hours to work through, just for one unit of work—just many, many hours to work through how I would design this unit, what sort of exercises do I want to put in, and at the end have they really gained what I was looking for. That was a far more difficult task, I found. (Transcript 47)

The concluding five lines of this extract portray some of the time-consuming and difficult learning in which the teacher was immersed, and show, too, the confidence and sense of achievement that accrued from it. More generally, the whole incident demonstrates how valuable it is to have a trusted mentor on hand, and how vital it is that a new theory be translated into specific syllabus-oriented and student-focused activities by the practitioner himself or herself.

These attributes were not present for the other science teacher in Category Y whose story was also told in some detail in Chapter Five. The crisis provoked by the conference on constructivism was much less intense than the two previous examples, but she, too, grappled with the sense of mismatch between the new theory and her customary practices. She returned to her school as an advocate of constructivist teaching and learning in science, and set about modifying her methodology to incorporate more frequent group work in laboratories not well designed for that activity. However, as the comments in Chapter Five about her Year Nine disease project indicate, the detailed advice offered in *Dimensions of Learning* (a concurrent and school-wide constructivist initiative) about developing meaningful tasks for students appears not to have informed her planning of the project in question. One explanation of this situation might lie in the fact that, while she was encouraged to write articles and make staff meeting presentations about the focus of the conference, she was left on her own to convert constructivist principles into classroom reality and there seemed to be no structured attempt to help her forge connections between her conference and the *Dimensions of Learning* program.

In short, there was no school-based follow-up organized to maximize the benefits of her conference attendance. The school's focus remained locked on the larger picture and did not shift to the location in which the innovation would take effect.

**Resistors.** As attention shifts to the five experienced teachers allocated to the N Category, an attempt will be made to infer what influences rendered ineffective (for them) the learning/professional development opportunities that were offered.

As became clear in the corresponding section of Chapter Five, one of these teachers had become interested in *Dimensions of Learning* and had enjoyed the tertiary-tutorial-style of the small group meetings (Transcript 20). He was quick to acknowledge, however, that he had not committed to a fuller study of the program. He agreed that he had not converted his initial interest in the differences between procedural and declarative knowledge into applying the two discrete learning strategies defined in the *Dimensions of Learning* teachers' manual. Despite some embarrassment and self-deprecation, he does perceive that the source of the difficulty is his own success in PE, sport and mathematics.

He has come to view learning in his subject area as the memorizing and application of a series of steps in a process. Quite appropriately, he has attached importance to the internalizing of procedural knowledge. His own sporting skills and his preferred method of procedural learning seem to have been cemented by success into a strong practical theory of teaching—so strong, in fact, that it distorts or overwhelms incoming ideas that are incompatible. The tutorial groups (five meetings that each lasted about an hour) were discontinued before the new and disruptive ideas could take hold, mentoring was available but not compulsory, and the question about applying Dimension Two strategies was not asked until the interview for this investigation almost six years after the launch of the *Dimensions of Learning* initiative.

Evidence of the blocking effect of a potent, established practical theory can also be found in the four other transcripts in this category. In Transcript 24, a science teacher makes it plain that he is a 'traditional person', who takes seriously his obligation as a teacher to maintain his directing of students' learning while modifying methodology to meet the nature of each particular group of students. His own professional priorities appear to have shaped his response to the issues associated with middle schooling which, as he says, have had 'probably not a real lot' of impact on his teaching of Year Nine science. His contributions to assessment discussions at the senior level betoken his interest in the administrative aspects of teaching, while his opinion that students bring a mindset—'you know, the sort of Sesame Street mould [that] ... makes it impossible for any real learning, I believe, to take place in the conventional way [and that] there's a time when the students have just simply got to work'—reveals a strong undercurrent of traditional views about education.

Again, in Transcript 34, a resilient practical theory can be detected. Here, a mathematics teacher asserts the primacy of course content and the need for it to be sequenced correctly. He observes that discussions about:

... the use of technology, the use of applications, investigations, practical activities [have] always been around amongst mathematicians, especially at conferences, but [there is] the reality of how much you can do in the classroom, given that maths is very content oriented ... There are logical sequences in which you learn things. There's a limit to the things you would like to do and can be done in the time. It comes back to efficiency. I guess that's where I come from. (Transcript 34)

Later in the interview, his comments on the difficulties posed by long (ninety-minute) afternoon lessons repeat his concern to cover the course:

I suppose there are times when you have to practise and do the 'doing stuff'. To maintain the concentration that long, I could break it up by doing a lot of fun and games and practical

activities, but I feel I'm not getting through the key ideas that need to be learnt to be able to go to the next stage. (Transcript 34)

It seems that he, too, maintains the view that "real" learning only occurs when he is "teaching" in the traditional manner, and that student activities are mere 'fun and games'—thereby sharing his colleague's dismissal of such classroom activities as the Sesame Street games of pre-school children.

In Transcript 48, the science teacher experiences the, by now familiar, concern that valued content has been displaced from the syllabus in order to accommodate interdisciplinary units, and questions the authenticity of the innovation: 'a lot of the stuff is things we've been doing for years, and continue to do'. Moreover, his own preference for direct instruction is clear. When facing the need for both IT skills and a blueprint for applying them in class, he looks for someone 'who's going to teach you to use it properly':

I found it very uncomfortable ... that there was no set time put aside to say, 'OK, as a Year Eight science teacher you are going to have to teach data bases. We'll take you all out of the system for half a day and we'll go through and make sure you understand how to teach it all, here's how to teach it, away you go'. (Transcript 48)

Of interest, too, is his expectation that students in the vocational stream he regularly teaches will balk at any attempt to label tests as embodying *Dimensions of Learning* approaches, assuming the test to be irrelevant and/or too difficult for them. The tendency to place a low estimate on the capacity of students to deal with higher level thinking skills is noted also in Transcripts 34 and 24. Similarly, in other members of this small group there is a trend towards depicting the current innovations in their schools as semantic conjuring. As one put it:

I think it's just the language. I think the whole thing—what gets me is the whole system—we actually go round in a circle, really, and we come back with different labels. (Transcript 34)

The origins of attitudes like these can be discerned. The English teacher's genuine admiration for his teachers, 'the models that I grew up with', is a powerful influence:

Some of my teachers ... were inspirational ... and one of the regrets of my life, I suppose, is that I've never assumed the same familiarity with text that some of those had ... they didn't need to take their copy of *Macbeth* or *Hamlet* to class with them because they could perform it ad lib. (Transcript 19)

Powerful role models, in combination with successful practice within an earlier paradigm, are more than a match for inadequately motivated and implemented opportunities for new learning.

One final thought in this section arises from the reporting by two of the teachers in the N Category that they had experienced a milder version of the Y style of change in earlier years, thus confirming their current practical theory. This prompts speculation about the number of times that human beings can profit from significant upheavals of this kind.

#### 4. ROLE OF THE PROXIMATE GROUP

In the complex life of the secondary school, teachers participate in a number of groups—academic, pastoral, co-curricular, financial, promotional, industrial and so on—but, for most, the closest relationships and most frequently shared times and spaces are to be found in association with the subject department in which they teach. It is scarcely surprising, therefore, that most of the experienced teachers interviewed during this investigation indicated that the faculty group was the location in which they would achieve pedagogic change (Transcripts 2, 3, 11, 12, 14, 17, 20, 21, 22, 26, 28, 35, & 46). They were able, also, to provide specific insights into a range of inter-connected and complementary factors at work.

Intellectual stimulus and academic focus were seen to be significant benefits. One teacher contrasted his experience in a former school where there was 'constant pressure ... to deal with things immediately and quickly' with his current situation where he found 'a far more intense level of discussion, concern, interest in content, and ... some anxiety ... about how teaching and learning worked in or underneath or in concert with content ... and tension between delivering the content and teaching according to ideas of learning'. He concluded, 'I view these things and engage in these conversations with interest' (Transcript 22). Another teacher commented:

I work with a group of people who are on the cutting edge and like to keep themselves that way ... [they] have no problems with me coming in to work on a Monday morning saying, 'Hey, I've just invented some geometry', and we can discuss it and they don't think it's weird. I think that one of the joys of teaching is that it's academically stimulating. (Transcript 11)

These two examples demonstrate how the proximate group can spark debate and sharpen understanding of principles and goals that in turn shape classroom activities. Other teachers identified their faculty as the group in which more specific learning could be achieved. A science teacher understood that one person might have the vision to lead the innovation, but it is difficult for one person to achieve effective communication with sixty or more people. He argued that it is easier to deal with 'small pockets' within which there is a 'champion' of the innovation. If the focus is a revised pedagogy, the faculty is the best unit for change (Transcript 12). The way such an approach can be made to work is outlined in Transcript 3. The whole staff had already heard presentations about broad strategies for inclusive teaching. Then a grant provided replacement staff to allow the staff specialist in this area to engage representatives from various faculties in a 'small professional development activity':

The idea was that we would begin the process of change from within, so teachers felt they could do something to change the way that we were teaching students ... I was able to talk

more specifically, and teachers gave me some of the content that they tried to deliver, and we tried to model that into some of the inclusive strategies. (Transcript 3)

In combining revision of principles with direct coaching in the application of those principles to nominated units of work in the teachers' own subject area, this approach signals powerful learning opportunities for teachers. The learning becomes even more potent when the groups are restricted (as they were in the instance cited) to two participants with the mentor. In less formal circumstances, it may be possible to achieve a one to one ratio that links teacher with mentor in conversations that test understanding and clarify misunderstandings or doubts (Transcript 17), or share information and hints with a colleague teaching similar classes (Transcript 26). As one put it:

I have learnt more this year about teaching English (which is what I've been wanting to do for a long time) than I have in years, to be honest ... We talk about what we do all the time and it's endlessly interesting and it's a lively, sometimes fractured, but productive faculty on the whole, and that's where I wanted to be ... I think that if we were looking at training and development—looking at how we get teachers to think—it's by having a really lively, not necessarily subject-based faculty, but some sort of an arrangement like that because, let's face it, most of the business you do during the day is over a cup of coffee, or talking while you are marking, or avoiding marking, or something like that. That's where you do your business a lot of the time, and that's when I think I do a lot of my productive thinking—I know the others do—we sit around and talk about how we approach this, what we do with that, and [Head of Department] has an intellectual range of knowledge in subjects that we constantly learn from, and I think that's ideal. (Transcript 22)

It is becoming clear that teachers choose to work in their proximate group, not just because they are comfortable with friendship groupings that develop there, but because that is the prime location for such important ingredients of professional growth as relevance, motivation,



opportunity and leadership. In addition, the pooling of ideas generates a larger pool of resources than one teacher could ever create:

I am able to discuss different approaches with my colleagues, and because they have come from different backgrounds and different schools of thought, amongst us we can come up with several different approaches to presenting any particular concept. (Transcript 11)

Another transcript notes the contribution of new knowledge and skills that younger teachers can bring to an established subject department:

They are deliberately appointing younger people ... and of course they have a whole new area of expertise ... they may not have some areas of expertise that I've got but it's very complementary, I'm finding ... so we have a very nice time because there's really wide respect for what everyone is bringing to their teaching. (Transcript 21)

There is more, however. Collegiality, at its best, doesn't ignore different ideas proposed by colleagues (Transcripts 34 & 17), nor does it just encourage mimicry of another's work. The point was well made when a science teacher described his interaction with a younger member of the faculty:

[Name] wants to talk, wants to share. He is open; he takes an idea and runs with it ... Sometimes you feel as though you are dropping water into a sponge, but with [name] you're getting feedback. You're not just getting a reflection, you're getting a processing of the ideas, and an amplification of the ideas so that you feel ... he's gone way beyond where you were, and that's great. (Transcript 17)

Furthermore, collaboration in the proximate group begets confidence and risk taking. A science teacher involved in drafting inclusive strategies for her subject commented:

When we sat down and were writing [the strategies] and developing science programs at the same time, it gave me confidence that I wasn't completely out on a limb. There were other

people in different faculties trying the same sort of stuff, and because the students were getting used to seeing the same words or the same methods ... it gave me a lot of confidence that I could try something. (Transcript 28)

It might also be noted that, in addition to enhancing the confidence of both students and staff, this is the context in which intra-faculty codes are likely to be developed. Furthermore, this is probably the best situation in which (as one teacher described it) 'colleagues and coordinator can erode away' particular cases of resistance to change (Transcript 35). It is also one context for celebrating success:

Actually, one of the big things this year is the work that [name] and I are doing. Between us, we have three Year Eight classes, so we are writing tasks and adapting them. When I write something for my class, by the time the second class is done, it is changed—which is not a good thing—but it is really good for us because we share the same office ... and we come in after a lesson and say, 'You should have seen ...' and 'Look what this kid did', and things like that. That's a big thing—actually seeing what is being done and seeing that, yeah, that was worth all the hours of blood, sweat and tears. That's a big thing! (Transcript 14)

There are no signs that teachers are merely tinkering at the edges or being self-indulgent, when they advocate an emphasis on learning in the proximate group. They are, in fact, describing the context in which the broad brush strokes of the introduction of an innovation are refined into the fine detail of the finished product, or to put it more bluntly, they are the means by which big ideas become operational.

Nevertheless, the proximate group is not always successful, particularly if the school climate is as negative and defensive as was recalled in one former school with some despair:

I speak with some bitterness, I suppose, but it was depressing. There was a barricade mentality prevailing where tenured staff were threatened by everything and they were drawing their wagons in a circle ... and that was one of the greatest obstructions that I saw. (Transcript 22)

Again, the success of faculty-based innovation is compromised if only some members of the group are involved. Of the six mathematics or science teachers interviewed in one school, two (Transcripts 24 and 34) were present for the initial whole-staff presentations, but did not take part in the faculty's course writing—probably, by choice, in one instance, and because of other, external committee responsibilities in the other—and, consequently, both had only a tentative grasp of the innovation.

In the two schools, another criticism of the working of proximate groups was that their valuable influence was cut off well before the learning tasks were completed:

It was fantastic what we did ... but that was it; we had that half-day! We did a few things over the next few days. I tried this, I tried that, but then it gets lost. Other things happen, you have your other commitments and it is difficult, it goes by the wayside. But, if you did it more regularly and actually really focused on the topic, 'Let's see if we can write some sort of unit plan that we can adapt', and things like that, I think we would be ready to go at it with some sort of concrete plan rather than giving ideas. (Transcript 14)

Even when several meetings were scheduled in a planned sequence, they were seen to be inadequate:

It's a general criticism of a lot of professional development programs—sometimes successful, sometimes flopping presentations at the start of the year or term—that not much follows on from it. We tried with *Dimensions of Learning* to keep some sort of follow up, and I think that those reflection groups were the most critical things—it was a useful idea—but we didn't sustain it [and] it wasn't made compulsory. (Transcript 17)

Other comments suggested that a useful extension to faculty-based discussion and course writing would be the opportunity to see a colleague teaching part of the revised unit (Transcript 11) as a prelude to more, and more insightful, 'professional discourse' (Transcript 2). Concern was also expressed that newcomers to the staff would not have shared in the

powerful learning experiences that led to current teaching practices, and that without a careful induction program, they might unwittingly contribute to a diluting of the original innovation (Transcript 28).

The proximate group may, therefore, be seen as the essential forum for growing and sustaining pedagogic innovation, not only because every aspect of the change eventually devolves onto those who must make it work in the classroom, but also because the subject department in the secondary school is the most organically appropriate group to assume these responsibilities.

## 5. LEADERSHIP

Teachers' comments about leadership were infrequent and tended to focus on extremes of leader behaviour. The Principal of one school and his innovation team were applauded in one interview for the encouragement and impetus they provided to the innovation in that place:

I think time and commitment from the hierarchy are what's made it work. I give [the Principal] an awful lot of credit ... because he really did put it in the major league. He said, 'Look, it will happen; we will make it work. I don't see how we will make it work, but we'll make it work', and that was important. His deputy's commitment ... was critical. Having people there who you could bounce ideas off, who could energize, who could focus, who could crystallize—those people were critical. (Transcript 17)

Two heads of department were specially commended for their subject knowledge, their understanding of the wider context in which schools operate, and their capacity to communicate, challenge and enthuse. Speaking of conference attendance, one teacher commented:

When you have a head of department like [name] it's always, 'What a wonderful idea; off you go'. It's never, 'Do you really want to go to this? Are you sure it's going to be valuable?' It's never questioned, and that's vital. (Transcript 21)

Speaking of his faculty leader with an enthusiasm that may even escape the printed word, another teacher observed:

[Name] has been changing the emphasis for a number of years, because he's seen what's going to happen with mathematics ... He loves students to be investigating mathematics, to write about mathematics, to talk about mathematics, to explore mathematics, and so the work has changed considerably ... and students are encouraged to become far more independent thinkers. (Transcript 47)

Similar tributes were offered to the Approaches to Learning Coordinator (Transcripts 2 & 14), and to the leader of the middle schooling initiative (Transcript 35). Note should also be taken of the informal leadership roles that emerged within faculties when a teacher took responsibility for particular aspects of an innovation (Transcripts 35 & 47).

Some scattered criticisms of leaders were voiced, particularly with reference to a perceived failure of a change leader to implement the pedagogy he had been espousing (Transcript 34), and the abandoning by the head of department of a Year Eight science practical examination, which seemed to at least one teacher to be a resiling from agreed practice (Transcript 17).

A more general view drew attention to administrative difficulties which hindered the implementation of the project in hand, and which teachers seemed to think could have been averted by different decisions in the leadership team; this matter will be taken up in Section 6 that follows. Nevertheless, teachers appear to have been largely content with the performance of their leaders—their expectation being that leaders would, on one hand, show what was to be done and how it would be achieved, then encourage, empower, model, coach and reward.

On the other hand, leaders were expected to protect their staff amidst the vulnerabilities of change, through such management avenues as monitoring workloads, minimizing time constraints, eliminating inequities where possible, and safeguarding the project itself.

## 6. ADJUSTMENTS TO SCHOOL STRUCTURES AND PROCEDURES

Managing a large secondary school—even in the most settled of times—requires a careful balancing of multiple, frequently conflicting, pressures. The task becomes increasingly complex and hazardous when the normal activities of a school are overlaid with the disruptive processes of pedagogic change. One teacher caught the intensity of the task in a most apposite image:

There was an analogy ... that I heard a number of years ago ... It was the one about repairing the jumbo jet in mid-flight—you've got to keep the plane flying while you modify. I think that's the situation a lot of administrators in school—a lot of the people who are involved in whole school change—find themselves in. It can be fatally problematic, I think. (Transcript 22)

Other teachers may possess similar insights, but it should be noted that criticisms related to management issues were about four times as frequent in the summaries of transcripts as were commendations.

On the positive side, some teachers understood that the structures required by the Middle Years Program, such as the insistence on interdisciplinary units and the inclusion of Approaches to Learning in the curriculum, actually encouraged valuable integration across several areas of the curriculum or fixed the attention of teachers and students on the process of learning and thereby enhanced existing priorities (Transcripts 2 & 3). The role of assessment and reporting in improving student learning was also acknowledged (Transcript

22), as was the capacity for new, longer lesson times to promote reviews of customary teaching approaches (Transcript 28).

The criticisms, however, go to the heart of innovation. Teachers are the ones "repairing the jumbo jet in mid-flight", and they report significant difficulties, chief of which is an excessive workload.

An English teacher described her marking schedule at length. It is important that it be cited here:

I must admit, by the time I've done my marking, I don't really want to chat about anything ... This year I've got 44 Year Twelves, and they wouldn't put it into three classes and other people have got 13 [in their class]. A colleague was just staggered the other day because he ended up with some drafts to give back to students. They were creative writing so at this stage of the year [Term Four] I tell them I will point out grammatical errors in the first paragraph and that's it. Then I will just do the, you know, 'I think this doesn't seem to fit' or whatever, and so it was very lightly drafted, and he was amazed. He said, 'Do you do this to every piece?' and I said 'Yes, and in a lot more detail'. And I said, 'Well, to get 44 marks in my mark book, I really have to mark 88 drafts, and some of them will pass up more than one draft, so that is very depleting. That is why I teach 0.8 because I can't teach five English classes. I just get sick—it's too hard to do properly ...

There's one teacher here who won't take a homeroom group, because he teaches Year Elevens and Year Twelves—well, whoopy poop! So don't we all! I went into the photocopy room and they'd left a test—it was Year Eleven, multiple choice—so you didn't have to read a sentence. But, not only was it multiple choice, they had then put—say there were twenty questions—so vertically we had the twenty questions and then, you know, A, B, C, D, E...so they didn't even have to—. When you're tired, that gets a bit thick and you think, 'Hmm!' (Transcript 21)

She goes on to point out that she 'marks most nights' and at the end of the first semester had to write [largely at night] an extensive report on every one of her students, a process that

interrupted her teaching, and left her 'exhausted'. Heavy workloads like this are not uncommon and their effects are hostile to innovation. A mathematics teacher told how his workload expanded with little warning:

It wasn't long after *Dimensions of Learning* started—am I using this as an excuse? I don't know—but it wasn't long after we started *Dimensions* that we decided, 'Oh, we're going to do the IB'. Well, that was me; I was IB maths, so I suddenly had to look at the Year Eleven and Year Twelve IB course, and I hadn't taught a lot of that before, and so, honestly, my time—my free time—had to go into, 'Right, this is what you're supposed to be doing'. So if I'm supposed to be at that end of the senior school, but our focus was on making sure *Dimensions* was working in the junior [and middle] school, I mean, you can't be in two places at the same time.  
(Transcript 20)

Like the English teacher, he found the exigencies of daily classroom work were consuming what little time, and perhaps more tellingly what reserves of energy, concentration and creativity, he possessed. He felt that the continuing demands of each day's classroom routines kept him simply too busy to address the larger picture of innovation. Others said much the same: 'Time is more and more our enemy' (Transcript 17); 'Teachers have got to have reflective time, they've got to have time to talk' (Transcript 24); 'There's no time to do things well enough—we're busy on sport, the co-curriculum, school camps, as well as teaching—the pips are squeaking' (Transcript 22, Field Notes). A science teacher listed her actual teaching assignments—seven subjects to teach, with two of them being new courses and the IB class combining a standard and a high level in the same room, together with pastoral and co-curricular duties—and she commented ruefully: 'I just simply don't have time in the twenty-four hour day to do all that is demanded of me' (Transcript 46).

Another science teacher with additional responsibilities in pastoral care pointed out that some parts of his day were predictable and could be planned, whereas in others 'there was always



the unknown every day ... and then you can basically forget about your teaching for the rest of the day and maybe the next day ... You always have to be super organized' (Transcript 26). He makes the point that, even with a slightly reduced teaching load, he finds it difficult to maintain a creative approach to teaching. He also reminds us that teachers have a personal life that is often constrained by teaching preoccupations:

It's not like a nine-to-five job ... where you can turn everything off and come back in the morning. Teachers are always thinking about ... tomorrow, because stuff there is always happening ... They've got families to deal with, they've got partners, they've got all those sorts of things, too. (Transcript 26)

The impact of a heavy workload on the capacity to innovate is well demonstrated by the teacher who, challenged to create units of work that maximized the benefits of a graphics calculator, became so absorbed in the challenge that he found himself:

... working outside of hours and ... at home [because] a lot of thinking went into designing the units ... It was a new tool and it was a fairly exciting pathway that mathematics is going to take and it does change the focus considerably. It did become a bit of a hobby, yes. If it was going to be successful, it really had to become that.

Then, he accepted responsibility for residential students:

That's why in the end, half way through this year, I had to give it away. I just didn't have the time any more ... just to give the thought that was needed. It does require a lot of thought to design units of work which are suitable for students, and whereas I was able to have that spare time on weekends last year, here a weekend is just another day ... I didn't have the time to give it the thought that was needed ... Time is a big thing in designing work. (Transcript 47)

When prompted to consider whether it was quality time that was needed, he agreed, reminding the interviewer that much of his planning had been done at the weekend and:

... not really at the end of a busy day—you know, ten o'clock at night when you need to be sitting down and perhaps relaxing. So, that's the difficulty; it's not just time, it's *when* you actually find the time. (Transcript 47, his emphasis)

One of his colleagues in the mathematics department summed it up: 'It's quite exhausting to be innovative. It's much easier to stick with the tried and true [which, it must be said, she didn't!] (Transcript 11)

No other issue drew the same degree of attention as was accorded to workloads and the time required to complete essential duties. This situation looms as a major concern for leaders of innovation. Nevertheless, other relevant topics were taken up by teachers, and their perspectives are summarized in the remainder of this segment.

Large classes were identified as a problem, not merely for what they added to teachers' workloads (Transcript 21), but because they promoted impersonal interactions (Transcript 28) which were inimical to the kinds of collaborative, student-focused learning activities that were being encouraged. It was believed that administrators made choices that sometimes were based on financial rather than educational factors.

Some management decisions were thought to have interrupted valuable peer-led programs of innovation. Examples include the development of units of work by a mathematics teacher until he transferred to a position requiring much more out-of-hours work (Transcript 47), leadership of small groups focusing on inclusive strategies being excluded from professional development time because of tasks accorded higher priority (Transcript 3), and invited, innovation-focused presentations being relegated to the bottom of the faculty meeting agenda when 'five o'clock had come around and everyone's sitting on the edge of their seat and ready to move out' (Transcript 14).

There were suggestions, too, that accountability measures such as the Middle Years Program's documentation of syllabuses and assessment procedures spawned paperwork and intensified workloads for disputed gains (Transcripts 28 & 19).

Matters of simple effectiveness were raised. It was pointed out that one English teacher who had joined School B at the beginning of Term Two, did not receive her introduction to *Dimensions of Learning* until the beginning of the following year (Transcript 21) and by then it had been reduced (possibly, on financial grounds) from the original two days to a scarcely adequate and shared morning session (Transcript 22). One of the major management tools, the time table, was also mentioned, because teachers in School A were required to move from room to room throughout the day and did not have the option of setting up a more or less permanent teaching base with appropriate resources and ambience (Transcript 28).

Teachers were conscious of the efforts of administrators to pursue innovation until a successful outcome had been achieved. For that reason there was criticism of the apparent failure to provide teachers with sufficient time and instruction to enable them to teach the components of Information Literacy Across the Curriculum that had been allocated to them (Transcript 48). There was also dissatisfaction with a situation that allowed changes of course and teaching allocation to occur so frequently that it became extremely difficult to consolidate any gains from year to year; the prime case of this related the experience of a science teacher:

There's been a myriad of changes. In fact, I worked out that in my first seven years here ... I will not have taught the same subjects two years in a row. My first year, everything was new because there were new ways of doing things here, so that's fine. The following year, I had the IB physics, so I had to incorporate that. The following year was the second year of the diploma which I hadn't taught before, so I had to incorporate that, plus the Year Twelve syllabus changed, so that was year three. Year four is this year where MYP has come in and it was last year where ILAC also came in. Next year that's going through to Year Nine and that's

going to go through to Year Ten. So, in the seven years there hasn't been an opportunity to consolidate at any point because of the changes that have occurred. It's the way it's gone.

(Transcript 12)

## 7. STUDENT INVOLVEMENT

In every transcript of the eighteen interviews with experienced teachers, there are genuine, professional expressions of concern for the well being and effective learning of the students they teach. There are, however, few instances of teachers drawing students into discussions of the learning theory embedded in the innovations thought to be occurring in the school.

A few teachers made a point of sharing insights into learning. The mathematics teacher experimenting with the application of graphics calculators to problem solving indicated that he would recommend a cautious approach:

I think in the initial stages I'd be working with them ... and telling them basically the type of methodology you're going to use ... This is what we're going to be trying to do and this is why we're doing it. We believe that it is good for these reasons, and that you're going to be better for having been exposed to this style. I wouldn't labour it, but I certainly present it in such a way that people understood exactly what you were trying to achieve and why. (Transcript 47)

Another mathematics teacher described how she taught her students to use inductive and deductive reasoning, explained the purposes of testing, and encouraged them to maintain a mathematics dictionary (Transcript 11). These activities may have been syllabus recommendations, but they were actually implemented with her classes.

A science teacher, fresh from her conference on constructivist learning declared:

I certainly worked through it [constructivism] with my students and talked to them about it to influence their learning right from the beginning of the year ...

Chemistry can be a confused mass of facts unless they can see the underlying patterns, and I'm always trying to help them to see that—using flow charts is one method I use—and constantly harping back to other parts of the course where there is overlap, just to remind them to see the length. Also I remind them ... that they all learn differently, and I think they should be aware of that, as well, and learn the best way for themselves. (Transcript 46)

As in the two previous examples, this teacher also seems hesitant to proceed too far towards fostering a fully metacognitive student experience of learning: 'I don't know if they want to know about this, they just want to know how they are going to get easy results' (Transcript 46).

Other teachers referred, with some pride, to their recently acquired practice of allowing students a degree of choice of topic or mode of presentation, or an increased use of group work that entailed instruction in the skills that promote effectiveness in the group. It was a rarity, however, to find a teacher providing explicit direction, for example, on making effective use of higher level reasoning to solve authentic problems. Even more conspicuous was the absence of insights into how students might profit from what is currently known about human learning. On the contrary, teachers seemed surprised or embarrassed at the very mention of such a topic:

*Do students nowadays know more about the learning process itself?*

I wouldn't have thought a lot. No, I wouldn't have thought they'd know a lot about the process of learning—I just haven't thought about it a lot. I'd probably need to think about that one ... I mean, a lot of the kids have the attitude, 'Tell us what we've got to know and we'll tell you what we know and then let's get on with real life' ...

*How overtly do you help your students to understand why they are learning a particular thing in a particular way?*

I don't think I have ever done it consciously, and I don't think I have done it. (Transcript 24)

This conversation took place in the school that had asserted the importance of empowering their middle school students, so that they might be actively involved in their own learning, make choices about their own learning activities, take part in open ended enquiry, and be regarded as thinkers who could make significant contributions in the classroom. In the same location, teachers said: 'They only want to know how to do something, rather than why' (Transcript 34) and 'Oh, yes, I think the students expect you to stand out the front ... Year Twelves are shocking for that—they don't think they've done any work unless they have copied some notes from the board' (Transcript 28).

In the other school, which had attached a premium to fostering student thinking as the basis for learning, the same tendency to underestimate the maturity and intellectual competence of students was to be found. One teacher was certain his class—not one of the 'strong groups'—would reject any suggestion that *Dimensions of Learning* had relevance for them (Transcript 48). Similarly, the exchange that follows seems to crystallize the gap that can exist between teachers and students:

*How often do teachers these days stop and talk to their students about what they are doing?*

*How often do you get a chance to talk to your maths students—how was this—did we get it right—what would you have liked—how could I improve it next time?*

Oh, I don't think I ever do that, unfortunately, no. (Transcript 20)

## 8. CONCURRENT INNOVATIONS

Like many other secondary schools at the beginning of the twenty-first century, School A and School B were responding to a number of calls for action.

In School A, the establishment of a middle school in 1993 had promoted a focus on the successful learning of each student from Years Six to Nine. Appropriate structures were put in place, and much work was done both to define an appropriate curriculum and to describe

preferred pedagogy. Within that initiative, the existing withdrawal program for students with learning difficulties shifted its activities to the general classroom where support for all students was promoted and strategies for inclusive teaching shared. When it appeared that there was a close fit between the school's own planning and the International Baccalaureate's Middle Years Program, the latter was implemented in 1999. Thus three lines of development were appearing in the school during the last decade of the twentieth century: the articulation and application of middle school principles; the promotion of inclusive teaching strategies; the adoption of the Middle Years Program and its attendant requirements for documentation, assessment and accountability.

At School B, as the next phase of an established professional development program to encourage continuing refreshment of methodology, *Dimensions of Learning*, a model for applying modern cognitive research to students' learning, was progressively adopted from 1995. In subsequent years, a cross-curriculum plan for all teachers to embed futures education, computing skills and information literacy within their syllabus was launched in 1997, the IB Diploma was introduced into the Senior School in 1998, a middle school was established, and the IB Middle Years Program was explored and ultimately abandoned in 2002.

In both schools, care was taken to identify and emphasize the common elements that integrated the various initiatives. In School A, in a strategic move, the learning support teacher became the Approaches to Learning Coordinator who suggested:

The learning support program was effectively the Approaches to Learning program without having that title until it came along, so in fact when we implemented the MYP, it was a fairly easy transition for me. The benefit was that it placed Approaches to Learning and effective and explicit teaching at the core of our curriculum officially. (Transcript 3)

As it turned out, the situation became more complex as other demands for professional development time crowded in: 'You used to have lots of time for PD; now there are so many other things to do that we are all scrambling for a place at times'. Other teachers working towards a new pedagogy found the same problem of access to the few time slots provided for staff development. Commenting on the availability of extended sessions during student free days, a mathematics teacher said:

I think, technically, there are four but two are for subjects like mandatory reporting that have to be done. We were hoping to have one next term where [a colleague] and I could actually spend half a day ... working with the faculty, but we're not sure what's happening. We were hoping to get two of the four, but it's still not a lot. (Transcript 14)

It is not only the scarcity of (and competition for) professional development time that is generated by the existence of multiple projects. The very business of dealing with several innovative projects, on top of maintaining a full teaching, pastoral and co-curricular assignment, brought a workload that many described as excessive (Transcripts 11, 12, 17, 19, 20, 21, 22, 28, 46, 47 & 48) to the point of denying to individuals the energy and quality time for innovation. Furthermore, the view from one classroom in School B warned that exaggeration of the overlap between projects (and, therefore, the comparative ease with which innovation might be achieved) might breed resistance:

Then *Dimensions* got started ... you needed to give it time to bed down, and then ... Futures rolls up, so you're going to be focused on Futures as well, which you could say, 'Oh, it will fit very nicely into *Dimensions*, and then there's ILAC which will fit nicely into *Dimensions*', and that was how it was explained all the time, and the last straw, perhaps, was the MYP where their Approaches to Learning or whatever—'Oh, that's our *Dimensions*'. They keep on justifying that 'We're not actually asking you to do any more'. Well, you are! You are, and what it's really saying to me, the person out there at the chalk face, is that none of these things we give great importance to ... I would have thought something as important as *Dimensions of*



*Learning* should have been something that was a focus—and nothing else—if you really wanted to get it up and running, to really change the culture of your teachers, you'd have given that time to happen. (Transcript 20)

At the faculty level, there is another dimension to the problem of concurrent innovations.

While the schools themselves were working towards school-wide changes, state-based curriculum committees, examination bodies and subject associations continued to amend or redesign syllabus or assessment requirements. Teachers referred to challenges posed by the introduction of a film component for English Studies (Transcript 21), 'two new courses' in the sciences (Transcript 46), and the introduction of the graphics calculator in mathematics (Transcript 47). Even if compatible with the school's own initiatives, these changes made strong additional claims on teachers' attention, and—if located in the publicly examined area—were mandatory.

Further, an interesting but rarely described by-product of multiple innovations was described by one teacher who pointed to the anomaly of planning extra topics for inclusion in a course (a component of Information Literacy Across the Curriculum, for example) while promoting events such as work experience, outdoor education camps and excursions thus breaking the continuity of the staple activities of secondary education and requiring special coaching for the absentees on their return (Transcript 46). This was not a questioning of the worth of additional activities, but it did bring to mind yet another, unforeseen, duty for teachers.

Finally, a mathematics teacher poses another unintended consequence of multiple innovations:

At the moment, everyone is getting together to talk about what topic we are all going to teach at the same time [to facilitate an interdisciplinary unit]. Given that we have limited resources ... and that we set all our Year Eight classes such that we can have some sort of movement between the classes, we can't all be doing the same thing at the same time. That means that if

you then go and say, 'Well the MYP says you all need to do this at the same time', the plans are mutually exclusive ... I mean, what is the focus? It was the [Head of Department's] idea to put them all together based on what he sees happening in maths education. Should he not put them all together because it won't work if you try to do IDUs? He's got to make a decision there, doesn't he! (Transcript 20)

Arbitrating such a dilemma is a considerable challenge for decision-makers.

## **B. HEADS OF DEPARTMENT**

Conversations with the six heads of department ranged extensively over the terrain of pedagogic change. In fact, a preliminary list of topics included 54 entries, 37 of which were mentioned by only one head of department, thus emphasizing the distinctive character and context of each subject department involved in this study.

It was possible to collapse some of this diversity into broader trends and categories that provide the major content for what follows, but a number of singular observations from astute leaders in unusual circumstances will be included where relevant. Section One reports the factors identified by heads of department as supporting their role in the school-wide innovation. Section Two deals with those factors perceived by heads of department to be barriers to innovation.

### **1. BRIDGES TO INNOVATION**

It might be noted here that heads of department occupy an ambiguous role in the hierarchy of a typical, large secondary school. Their authority as curriculum leaders confers on them considerable influence in programs of pedagogic change, for they work very closely with their subject teachers and carry a teaching allocation only slightly less than their colleagues. An intimate, egalitarian, subject-focused style of leadership is part of their life. As one put it:

We socialize together. People come to my place. We go out sometimes to have breakfast or afternoon tea ... We visit. We talk shop all the time because we like talking shop. We swap books that we've read. (Transcript 18)

Within the structure of the school, however, heads of department share with pastoral leaders a position somewhat less in status than the management team who report directly to the Principal, who carry a broader responsibility for, say, the school's total curriculum, and who are involved in mapping the future direction of the school as distinct from the subject department. Heads of department are the captains rather than the brigadiers and generals of the teaching force.

Because of their own skills, their status in the hierarchy, and the nature of their work, heads of department seem to fall almost automatically into a management mode that is collaborative. They know 'change is a state of mind' (Transcript 45) and that they have to help teachers 'get their head around' the new ideas (Transcript 25). The task inevitably is to help teachers make the theory of the big scheme operational in their own classes. They know that they must engage their staff in active, meaningful learning (Transcripts 18, 25, 29, 32, 36 & 45). Within these parameters, there is scope for a variety of approaches.

In the English departments, where pedagogy had already anticipated many of the middle schooling and *Dimensions of Learning* ideas, and where many teachers seem to have been in the 'assimilator' category anyway, the learning took place both formally and informally. The formal venue often was the faculty meeting:

I like to think ... we are constantly asking teachers to look at their values ... I do that, for example, occasionally at the beginning of faculty meetings, asking people, 'What have been your high spots this week? What have been the low spots?' It does a few things. Socially it includes everyone, gets rid of frustrations, but it also makes clear to each other what's important and what the values are. Sometimes we do it more formally, like, 'What's the subject

English?' because in English it really is a constant debate over what constitutes English.

(Transcript 18)

Informal learning occurs when teachers socialize (as described above), before and after school hours and, especially, during non-contact lessons when 'not much marking gets done, but a lot of professional contact and sharing of ideas' occurs (Transcript 18). The exchange of ideas is not only a matter of gathering recipes or blueprints, but of accessing the principles embodied in the practical details, too:

We still get a lot of swapping ... Sometimes we say, 'What do you use?' and we say, 'Oh, gee, can I borrow that? So there's a lot of swapping around of things that work. There's a whole array of ways of thinking and finding things that work. (Transcript 32)

Much of this activity takes place within the faculty, or in subsets of it, but it is reinforced by attending workshops, publishing papers, and attending to one's own creative writing.

In mathematics where data gathered for this investigation suggest that higher levels of resistance to pedagogic change are likely to be encountered, and where a very resilient collective code attaches a higher premium to the application of processes, heads of department tend to adopt a different approach to managing innovation. Sharing strategies and writing new units would appear to be counter-productive activities when individual teachers have not yet been able to revise their own practical theory. Instead of collaborative course writing, therefore, the heads of mathematics decided that, counter to prevailing wisdom, they themselves must write the new units and distribute them to staff for implementation:

I find now that when I write a test, I write it under the criteria of the MYP ... I find that is making me take a much closer look at what my students know and don't know, and what their strengths and weaknesses are.

*Are your colleagues travelling the same path?*

They are because I'm passing—we're passing—around what we are doing. That's been good.

*Is there a lot of sharing? Or do you have to do it all?*

I'm doing the majority of it at the moment, I guess, but there is sharing. That's only from a lack of confidence, with people not knowing what to do. It's not an unwillingness to be involved ...

They want to see what they have to do and have something to work from. (Transcript 36)

In the other school, too, the Head of Mathematics recognized that his colleagues wanted a model to follow, but he was less sanguine about their capacity and willingness to adopt new approaches. He had concluded that teacher development would best be achieved in the less than ideal situation that prevailed in schools if he distributed new units that he had written:

Now as a faculty they do trust the stuff that I churn out. They just walk in, pop it in front of the kids, and they develop on the fly. So, while they are flying through, trying to get their heads around what I've written and how I'm trying to get them to present the stuff, they're developing in the classroom. (Transcript 25)

To allay any concern over such a seemingly high handed approach, it might be noted that *Dimensions of Learning*, with its emphasis on five different types of student thinking, had been a professional development priority in the school for nearly six years at the time of interview, and the distributed units were reinforced by frequent and intensive conversations with individual teachers about the aims and effectiveness of that unit:

You don't have meetings. You get to [name] at six o'clock or to [name] at twelve o'clock on Sunday when you happen to be here together and you get to [name] and [name] separately.

You just work individually. (Transcript 25)

He was only slightly troubled by the thought that teachers might not initially have understood the educational rationale for what they were doing with their students:

... you put it in a form that they can understand that it's a bit of work for kids to do, and then you put it in front of them. And they will understand the theory through the work. (Transcript 25)

Alongside of this approach, the record should show the Head of English at School A presenting the exactly opposite view: 'It wouldn't work if we had our arms twisted behind our back. Nobody will ever teach successfully from somebody else's program' (Transcript 32).

Most tellingly, however, the head of mathematics at School B made the point that, despite all the macrocosmic documentation that might be circulating, for each of the innovations being pursued in the school:

... it's the same story. No materials exist—anywhere—So you have to invent your own ... It has been, largely, 'Let's produce the materials that will ensure that we are doing those things that we want to get out of this without having to spend three hours preparing it for themselves. Now that's not an ideal way to do it, but it's *a way* to do it. (Transcript 25)

The heads of science seemed to steer a middle course between the mathematics approach of using real classroom tasks to promote a revision of pedagogy and the English teachers' use of ideas and professional conversation to formulate new units of work. Perhaps the explanation lies in the fact that heads of science in these schools had a less homogeneous group of staff—some being constructivist in orientation while others maintained more traditional approaches. At School A where traditional approaches to teaching science were well established, the head of department was aware that pedagogic change is inevitably a difficult process:

You can't get a teacher to stop teaching one day in a certain method that he's been teaching for ten to twenty years, and the next day to start teaching in the new way. This has been a gradual process, and it's still ongoing. (Transcript 29)

He believes that many teachers look for 'tangible examples' of how to move from one methodology to another, and recommends more release time for shared writing of new units 'if you want something to actually happen', even though (as he points out) that can be expensive for schools unaccustomed to the larger budget allocations for development found in industry.

The situation in the science department of School B was probably easier. Here the whole-of-school focus on pedagogy was stronger and the science staff more attuned to innovative methodology (Transcript 45), and the sense of direction (for some of the program) clearer. The Head of Science had regular faculty meetings and half day release opportunities available to him for refining the shared understanding within the faculty. He spoke, too, of using both structural and professional development strategies to provide collegial support for some staff who were encountering difficulties:

We have a couple of staff [who are uncomfortable with teaching the computing components allocated to science]. I've ... allocated staff to Years Eight and Nine that are comfortable with IT. [Name] is one who hasn't been particularly comfortable with it, so we've had to help there. It's going OK, but the group hasn't had the same sort of exposure. It's something we're aware of and can only be overcome with professional development and support.

*Is that a one-to-one situation?*

It boils down to that, yes. Fortunately, three or four of the faculty are absolutely mad on IT, so they are developing resources which we share and use. (Transcript 45)

One of the major aspects of this head of department's role is leading his team towards consensus about dealing with the new tasks confronting them:

The other thing, of course, is having the time to sit down with staff and work it through. It can't be a presentation—'This is what we're going to do'. We have to talk it through and work out *how* we're going to do it. Every member of the faculty has a priority and value to add to it

... It's only a group of nine people, but you get nine different points of view, every one valid and adding value to the program. So, having made the presentation, we go away for another week and try and put it back together. You may go through that process two or three times before you come up with something people are comfortable with. (Transcript 45)

Against this background of collegiality and consultation, it is interesting—but not unexpected—to note the unanimous preference amongst heads of department for a structure or mechanism that placed outside of the department the obligation to implement. Speaking of how she rallied her colleagues to the task of rewriting the syllabus for middle school English, the head of department commented:

People have to accept responsibility for the change if they are going to be willing to participate in it and be effective. So, you have to try and have people on side, and often in the end it's the inevitability of it. It's got to be done, so how are we going to do it? It's got to be done by this time, so how are we going to organize it? OK, we'll do Year Eight this term, Year Nine next term. By the end of the year we'll have Year Ten finished and we'll be there ...  
Sharing the load is the way we've tried to take it. (Transcript 32)

In this instance, the team leader pointed to the consultation process that had preceded the decision to adopt the Middle Years Program and asserted that participants in the process now were bound to join forces to make it work. In Transcript 18, the Middle Years Program, though regarded with some hesitation, was promoted in the faculty as an opportunity to intensify collaboration, sharing ideas and team planning. The Head of Science in School B put the view that sustaining the momentum of *Dimensions of Learning*:

... was difficult with the busy-ness of day to day routine. If it hadn't been for [the leader of the project] I'm sure it would have fallen by the wayside. He was the driving force ... and kept us on track. Any school will need that, to overcome the strong tendency to get back into the busy routine and lose sight of the benefits of the program. If you've got a program in place which



you're slowly developing, that development will taper off and fall back into the old program unless there's a continual push. (Transcript 45)

Some others accepted a stronger intervention. The Head of Science at School A, for example, explained that progress towards completing documentation of courses had 'accelerated markedly', not necessarily because teachers thought it 'was a good idea' but because 'they had to, in order to meet the MYP criteria':

Our hand is being forced, in a sense ... It's just a matter of getting around to writing up the changes. That takes time. Inevitably you do what has to be done ... You tend to make time only when someone gives you a deadline. (Transcript 29)

The Head of Mathematics in the same school agreed that it had been necessary 'to force people' (Transcript 32) to consider new teaching approaches, that they were now 'being forced to re-examine ... assessment processes', and that the MYP 'makes them' review stale assessment tasks, or 'at least makes them think about doing that'. In School B, the Head of Mathematics included amongst the mentoring, professional development opportunities, and physical resources for changing methodology:

... an accountability structure that reviews teachers' practice every eighteen months to two years, and that actually has some teeth in it, and says, 'I've given you the time to develop and you haven't, so, I'm sorry, go and find a job somewhere else. (Transcript 25)

Like all his fellow heads of department, he asserts that there are limits beyond which collegiality can not go, and—if professionalism and pride are insufficient—some external impulse must be employed to counter innovation resistance.

## 2. BARRICADES AGAINST INNOVATION

All heads of department argued that the greatest barrier to successful pedagogic change was the lack of time. The Head of Science at School A, drawing on his experience in industry as well as in schools, drew a useful distinction between change procedures in the two locations:

Probably in industry they'd say, 'We're going to have a new cardboard box, and you and you and you, off the line to learn how to use this new machine. Then, on such and such a date, you'll take over with the new machine ... Teaching is a classic example for just giving you more things, but not giving you time to do them ... basically it boils down to, 'Look, go home and tonight I want you to read this. And then for all the other nights in the next six months I want you to rewrite all your methodologies and lesson plans'. People say, 'Yeah, that's a great idea, except that I've got a life outside of school, and I'll be doing my marking at night, anyway'. (Transcript 29)

Schools face the reality that it is expensive, unpopular with parents, and damaging to students' learning to take teachers "off the line" for any length of time. Moreover, while many administrative changes are achieved in schools with comparative ease, pedagogic change is of an entirely different order of complexity from making a box in a new way. The nature of the task involved in changing the methodology of teachers was well caught by the Head of Mathematics at School B:

I spent most of the last holidays preparing for the faculty day on the [student free day]. I wrote a thing called the *Stenduser*, an activity that's a starter, an ender and an enthuser. I said, 'The next topic in Year Eight is this, and here's a *Stenduser*. I want you to do it now'. They sat down. None of them could do it—for Year Eight maths! I said, 'OK'. They're all going, 'This is too hard'. So, instantly, we had that block of what those people were saying. We've got this big thing that they don't understand. So, what excuse do we get? Haven't got the time! We had a day, so we had the time ... I went through it with them, and the penny dropped ... [name]

spent a lot of time back at his desk over the next few days because he wasn't quite sure. Most people still thought it was too hard, but they did it with their class. They were surprised to find that the kids could do that stuff! They had to realize that, in some ways, as teachers they were pretty thick. They don't actually understand mathematics very well. They are textbook clones.

(Transcript 25)

These were intelligent, conscientious and successful teachers whose individual practical theories and collective code for teaching mathematics, so formidably shaped by all their previous experiences, were the actual barriers to understanding the novel task. What their faculty leader was doing (perhaps without fully realizing it) was inducing an acute experience of disequilibrium to provoke the revision of relevant schemata and to allow new understanding to develop. Clearly this degree of confrontation is unsettling, as the use of 'difficult' and 'scary' by the mathematics teacher dealing with the graphics calculator (Transcript 47) would indicate. When, however, accommodative learning is occurring, it is to be expected that a high level of discomfort must accompany the revision of substantial and previously successful practical theories. In addition, new schemata must be developed in order to facilitate recognition and understanding of new ideas. Both of these processes are essential. Both are time consuming.

Even if the learning process is largely assimilative, extensions to current ideas, refinements of practical theory of teaching, and revisions of syllabus, teaching methods and assessment practices do not occur overnight. The Head of English at School B, talking about successful strategies for staff development concluded her list:

... and time to do it! Time. That's the key.

*Tell me about how you find time.*

I don't! We're shortchanged all the time. We find the time informally here, but that's not

satisfactory ... You need time to seriously consider the curriculum and the whole picture. You need time to step back and look at that in order for change to happen. (Transcript 18)

In School A the search for time, which was just as acute, drew an informed comparison with teaching assignments in Japan:

Teachers really are too busy. When you think a teacher in this situation in Japan would teach fifteen lessons a week and we teach twenty-five, and they are the same lessons. They have classes of thirty to forty [students] and we have thirty, so their load is less. They can't believe we have so little time. They ask, 'How do people in Australia do their preparation, reading and marking?' That's it. People are always busy. There's never enough time to do your ordinary work, without taking on something new.

*Have teachers been relieved of some part of their load?*

No.

*Has anything been done to ease the pressure?*

Things have just not been done ... Nothing's been done as far as time in front of a class is concerned. In fact, our load seems to get bigger each year. I think that's across the board for all teachers. Our [non-contact] time seems to be less. So, I suppose, the things that haven't happened have been the things the faculty have said they wanted to do ... We are trying to set up resource folders for each topic that's taught, and that requires teachers to take more time to make project sheets and so on, and that has gone off the shelf this year. (Transcript 32)

When asked what she most needed to maintain the impetus for change in her subject area, the Head of Mathematics at School A unhesitatingly replied:

Time with my faculty to work through issues has been the greatest lack this year. We've really had very little faculty time to work through how you could write a unit of work under this program—that's why I've ended up doing a lot of the work myself, because our faculty meetings have been quite severely cut back this year for various reasons. (Transcript 36)

She went on to explain that faculty meetings are scheduled for the hour after the end of lessons on Mondays, and that she could usually expect to hold a meeting most Mondays during term time. Because 'other things had priority', she was able to convene only one meeting in third term but three in the final term, a situation that was a slight improvement 'even if they do come at the tail end of the year'. The same scarcity of meeting time hindered the Head of Science, too. He observed that, when the original discussions about middle schooling were at their most intense stage, he was leading a loose coalition of subject departments. He was faced with conducting meetings in which 'three quarters were bored senseless because not many agenda items involved all of them'; alternatively, he could 'have subdivided and had meaningful meetings [but] that meant I might see a faculty twice a term' (Transcript 29).

The Head of Science at School B reiterated the importance of time for discussion and sharing, but he insisted on establishing 'an absolutely crystal clear direction' (Transcript 45) so that discussions were fruitful, relevant and positive. He also explained that the availability of time was central to the process whereby science teachers refined or revised their shared code for teaching science:

If you look at the cross section of the staff, you may have new teachers on the staff—they may be very young, they may have different ideas, different perspectives. It's important to have the opportunity to come up with a united approach, a balanced approach that takes on board all those ideas. (Transcript 45)

When asked to estimate a minimum time allowance for science faculty meetings, he suggested:

We would need at least two lessons a week ... to come up with anything that is substantial and going to do the job. That's an absolute luxury in this place—you couldn't afford it—but with that sort of time allocation we could get a solid hour each week and keep the ball rolling. As it

is, we meet twice a term for probably less time than that as a faculty. As head of department, you're always aware that if you call a meeting after hours amongst a group already stretched to the limit, it's not going to be very productive. (Transcript 45)

The same notion of providing targeted and accountable release time became explicit in Transcript 25 where successful incorporation of ILAC into mathematics pointed the way forward for other subject departments and other innovations:

Buy them another teacher for twelve months, which means I can now say to [name] or [name] next year you're going to 0.8 or 0.6, and I want you to use that extra time to develop this. And, if at the end of that time, you haven't done it, I'm going to kick your behind. OK? You've got the time. Go off and do the job.

They don't seem to have the money to do that. But we have the money to employ an assistant accountant, and we have the money to employ an IT manager, and we have the money to— anyway, that's life. There's money to do certain things but they will not come down to grass roots level and get an extra teacher. (Transcript 25)

Beneath the claims of time poverty, there swirl undercurrents of both a professional and a personal nature.

Workloads were mentioned in five interviews. Concern was shown, for example, that the usual load for a teacher of English at School A was six classes, each of about thirty students, and that in one case, a teacher was responsible for seven classes and two hundred and ten students:

English teachers ... have huge marking and preparation loads. [Name] is a very conscientious marker of books to keep up with her students. You start to drown in the amount of work that still has to be done. (Transcript 32)

What has to be inferred, of course, is that the head of department had a teaching load only slightly less than this—five classes and one hundred and fifty students—and the obligation to match her colleagues in preparation and marking, while leading the faculty on subject-based and school-wide changes. She observed, 'It's very heavy at the moment'. The Head of English in the other school also commented, almost as an aside, "I feel overloaded most of the time myself' (Transcript 18). The perception of overload was not confined to English. The Head of Mathematics at School A acknowledged that she was continuing to provide colleagues with as many examples of units of work as she could, and she still believed in the value of the work that was being done, but 'It's a lot more work for us. I think a lot of people recognize that, and that's where the resistance comes from with the MYP' (Transcript 36). Another head of department was blunt in his depiction of the personal cost of promoting innovative teaching:

I'm not playing on this field any more. I'm going elsewhere, because I can't win unless I kill myself. My two kids now are three and five, and I'd like to see a little bit of them. I think I'm getting a bit old and tired in some ways. I try and reinvent myself continually to stop that. I think I've probably been successful at that. It's a bit of a drain now, and that's got to stop.  
(Transcript 25)

Intertwined with the time and workload issues was the antagonism aroused by having to deal in quick succession with several innovations, some of which were generated by school policy decisions, and some—largely unrecognized and unacknowledged beyond the faculty—arose from subject-related syllabus decisions. In reply to an enquiry about the faculty's professional development program, the Head of English at School B observed:

Well, I don't think we have a program! I think we are constantly driven by other things. We're told it's MYP this year, or it's *Dimensions of Learning* now, so you've got to put other things on the back burner. We've got some good units written at the time [when *Dimensions of Learning* was introduced] which we still use ... and then we're told there's a syllabus change

here or a new idea there ... I'm constantly directed by forces outside the faculty as to what I should focus on. I don't have any extra time at my disposal to do those other things.

(Transcript 18)

The view of the Head of Science was similar. The tasks associated with documenting courses and assessment to the standards required by the International Baccalaureate Organization were seen as reflecting 'different priorities' from those applying in Australia, to have been 'time wasting', and 'to have detracted from the kinds of things we're trying to develop, which had grown out of *Dimensions of Learning*' (Transcript 45).

Where it has affected us, of course, is we haven't finished the first one yet. We introduced a new text last year at Years Eight, Nine and Ten; that process alone takes two to three years to get in place. We're trying to modify that to accommodate some of the approaches of *Dimensions of Learning*, and now we're trying to accommodate that to take into account the MYP. It is causing so many worries and so much obstruction ... The kids are OK. They're sheltered from what we are doing, but the staff—I can't remember them being as stretched so far as they have been at the moment ... At the same time ... new courses are coming in at Years Eleven and Twelve for physics, biology and, next year, chemistry. (Transcript 45)

Later in the interview the head of department, while acknowledging that the *Dimensions of Learning* initiative had not been sustained 'to the extent we would have hoped', pointed to the way the Middle Years Program overtook the earlier initiative: 'There's no doubt in my mind that the MYP and its demands have diluted what we were trying to do in our own course development'. His prescription for successful innovation was unequivocal: 'Get one finished before you start the next'. A colleague said much the same: 'One change at a time!' (Transcript 18)

Other blocking influences were at work, too. All six of the heads of department expressed reservations about those on the next rung up the leadership ladder. One felt the top-down



nature of the process had left her 'disempowered' (Transcript 18). Another was irritated that the work required to implement new units was misrepresented:

Whilst people above us say the MYP or whatever will just take the place of normal preparation, being perfectly honest, they don't realize how little preparation people do and they don't really accept that most teachers have a cumulative preparation that starts the first day they stand in front of a class. (Transcript 25)

In another interview, the uneasy relationship between heads of department and the Principal's executive team surfaced when the increasing workloads were attributed (in part, at least) to the proliferation of middle managers in the school's structure, who it was alleged:

... have been given a time allowance to carry out their responsibilities, and they're feeding out tasks to be done, but it detracts from what we're trying to do in the classroom. (Transcript 45)

The critical stance extends to cover the way in which innovations were introduced. In School A, the inclusive strategies program was thought to have been 'imposed' and 'overdone' and careless with acknowledging sources from within the staff:

It was ... imposed because it was "such a great system and everyone should be using it".

*Imposed?*

Umm. (Pause) Imposed through PD and with the best of intentions, certainly, but imposed. They'd had a grant to do it, and they'd worked very hard and there were a lot of wonderful ideas in there—a lot of ideas that people weren't given credit for, because they just happened to appear, you know? (Transcript 32).

In the same conversation, there was criticism of the change leader's failure to move the process beyond the introduction: 'We had too much talking at first and no action ... We kept being told, and looking at rubrics, and kept looking at this and that. We weren't doing it' (Transcript 32). Consequently, later parts of the process were thought to have been unduly

compressed into what time remained for completing accreditation tasks (Transcripts 32 & 36). The documents defining middle schooling were said to have been developed after 'minimal consultation' and implemented amidst intimidating pressure from the author to adopt them (Transcript 36). Support for this comment came from a colleague whose opinion was that the leader of the middle schooling project failed to convince the staff because he discouraged debate of important issues and proceeded on his own agenda (Transcript 29).

In School B, the introduction of the Middle Years Program appears to have been sadly mismanaged, when two influential heads of department make such bitter attacks as are quoted here:

First and foremost there's got to be ownership of the innovation. The MYP is the classic example. We went through the process of having collective meetings where staff were brought along. We discussed at length the implications and it was put to a vote. That vote strongly said, 'No. We don't want the MYP for a number of reasons'. The staff were quite adamant that the MYP was not where we wanted to go.

The decision was made that we would have the MYP. The decision was made by the school's administration—quite rightly. That's why schools are not democratic institutions. The decision was made by the Principal and his executive—but that caused an immediate barrier. Staff didn't want it; the administration did. That was a huge error. (Transcript 45)

The second account of this situation refers to a different context, but leads toward a similar conclusion:

They'll start to use [the MYP] because now they've got a stick. If you don't tick off these criteria, the IB's going to get angry. It's not [the Deputy] or [the Curriculum Leader] getting angry—they don't have to be the watchdog any more ... And the MYP brings with it its own constraints that are going to screw positive pedagogic process. But, it's a stick, and on paper it will look great.

So we [the curriculum committee] go from having a meeting ... where I was given one MYP maths book and asked, 'What do you think?' I assumed that was all there was. And we voted to say, 'Yes. That seems OK, if we get the time'—which was not delivered on. And then, all of a sudden, other documents start to appear, like how you should report and assess. And suddenly it's criterion-based recording and assessment. Hang on a minute! Whoa back! (Transcript 25)

Heads of two subject departments depict an introduction that seemed to have misused the democratic process and was so prone to suspicions about the motivation and methods of management that 'ownership' of the MYP by the staff and their curriculum leaders was improbable. A year or two after the interviews were conducted in School B, the decision to adopt the Middle Years Program was rescinded.

To this point, issues common to many or all interviews with heads of subject departments have pointed to four major barricades against pedagogic change:

- lack of time for essential faculty-based professional development activities;
- excessive workloads;
- multiple school-wide innovations that exacerbate time and workload concerns, and interrupt subject specific development;
- lack of confidence in more senior managers.

Other issues, taken up by only one or two faculty leaders but deemed worthy of mention in this context, are now summarized.

The combination of inexperienced, diffident teachers and restless, uncooperative students leads almost inevitably to the refuge of traditional teaching and, thus, the stalling of innovation in such classrooms (Transcript 29). Teachers themselves are often reluctant to change their well-established methods of teaching—sometimes because experience has persuaded them that one innovation will soon be overtaken by another: 'Not more writing!'

(Transcript 32)—sometimes because they feel threatened as decades of carefully established resources and expertise become redundant: 'If something works and you're having success with it, why would you stop using it?' (Transcript 32). Administrative factors—resources, classrooms, timetable arrangements, assessment requirements, reporting styles and schedules—if not adjusted to new circumstances can be strong conservative influences (Transcripts 18 & 29). Perhaps the most chastening comment gave prominence to a head of department's sense of isolation; deprived by her position on timetable lines of joining her staff at times when many of them had non-contact time, and in the absence of any formal system of feedback and support, she reports:

I don't feel I get a lot of support as head of department. I don't feel anyone knows what I do or sees what I do or evaluates what I do. I've asked for evaluation, but there doesn't seem to be any time to do that. So I go on, and I really thrive from the odd remark, 'Oh, the English department is doing that well' or 'The English department did that first'. These are my little positive feedbacks. No one lets me hear any nasty comments—I don't hear the negatives. But that's what I feed on—these little comments from colleagues and members of other faculties or Board of Studies. I would like more encouragement in order to bring about change and have the courage to do what I would like to do. (Transcript 18)

### C. CHANGE LEADERS

Teachers in this category had responsibilities for the management of one or more of the change processes in their school. Four came from School A and five from School B. Five of the nine leaders were women. Two people from each school were involved in the wider issues of school management as members of the Principal's executive team, while the others—two from School A and three from School B—were drawn from the staff to hold *ad hoc* positions which had a school-wide rather than a subject department focus.

Naturally, the concerns and priorities of these nine people, as revealed in their responses in interview, differed from the more tightly focused comments of heads of department. Most notably, only one person in the leadership group—and from the second or staff tier, at that—mentioned the need for new units appropriate to the new pedagogy to be created in-house, nor was there wide acknowledgement of the methodology and resources that would support such activity.

Within the leadership group there appeared to be consensus over the issues relevant to their responsibilities, but interesting differences in the priorities assigned to each factor and their perceived implications emerged between the management tier and the staff tier of leadership, and between schools. These differences will emerge as, first, the facilitators of innovation and, then, the barriers perceived by change leaders are described.

## 1. BRIDGES TO INNOVATION

Unlike teachers and heads of department whose attention often went to practical considerations, all change leaders spoke about the principles that informed their own efforts to promote innovative teaching. The senior participant from each school was the most explicit voice for basic philosophy. From School B came the view that every innovation, indeed, every activity of the school, should be underpinned by a clear and shared ethos:

We really need to ... confirm what our fundamental philosophic approach to teaching and learning is, and we have this become part and parcel of the culture of the school, so that teachers understand it, students understand it and that it is our sole purpose for being here.

(Transcript 7)

This basic principle is seen in practice at School A when employment policy was being determined:

We spent—I couldn't even think of how many hours—we just talked philosophy ... just working it all through and arguing and fighting and articulating and testing. From that point on ... it was clear what we were looking for. (Transcript 4)

In this interview, the change leader also makes the point that the time taken for extensive discussion is rewarded later in the process when understanding and commitment are brought to bear on practicalities:

It took us five years to get to the point where we could say with confidence, 'Yes. We will take on the MYP' and I don't think if we did it any other way it would be successful. We are watching schools ... a few years ahead of us in terms of the moderation process ... struggling because they went in so fast ... but our staff are saying, 'Help me to work out how to deal with this'. There's no fundamental resistance, and there has not been since we began this process. (Transcript 4)

Other leaders from the management tier sought to emphasize features common to *Dimensions of Learning* and the Middle Years Program rather than the differences that were so distracting to some teachers (Transcript 8), or to promote 'a mind set in the school' that saw inclusive teaching strategies as good methodology 'accepted as, "OK. This is the way we should go" ' (Transcript 23).

Those in the other tier of leadership tended to focus on the strategies for achieving innovation. In School A, one concentrated on working closely with small groups on an authentic task as together they developed a handbook of strategies for inclusive teaching (Transcript 10). The other worked with colleagues in the writing of units in such a way that they would be templates for learning, not 'chapters out of a book', the emphasis being on processes and skills, with content regarded as valuable but not all-important (Transcript 1). In School B, the *Dimensions of Learning* specialists saw their role in the change process as coaching or mentoring to promote what one variously described as 'infiltration' or 'osmosis' (Transcript

39). They understood that heads of department were 'crucial to success' (Transcript 16) for they were the people who could 'spread the word' (Transcript 39). Facing a more difficult assignment, the MYP Coordinator described somewhat different priorities; she was more intent on ensuring the program was promoted as fulfilling perceived needs of students (Transcript 37), and that infrastructure was created to sustain the innovation.

In short, all the change leaders talked about how change might be achieved; it was not unanimity, however, but a kind of productive complementarity that operated in the teams. In this area, there seemed to be no significant differences between the schools.

The other issue common to all interviews was frustration that implementation was such a ponderous and uncertain process. The managers had their own explanations for this situation. One suggested a list: age, natural conservatism of teachers, laziness, individualism, territorialism, insufficient team building, lack of collaborative skills, fear, flawed implementation plans, inappropriate structures and inadequate leadership (Transcript 7). His fellow managers would probably have agreed with most of that list, for they too sought some mechanism that would ensure wider adoption of new ideas. It was argued that some process for external accountability was essential (Transcript 8), and that a crisis moment—such as might be occasioned by performance appraisal—might be essential in cases where teachers were unable to demonstrate compliance with school policy. Advantages were also seen in using the MYP's structural arrangements like Areas of Interaction and interdisciplinary units to compel collegial discussion. One view in the other school was that changes to assessment practices would provide 'huge impetus for [pedagogic] change in the school' because 'You don't really change anything unless you look at how you assess' and some people had become 'entrenched with the old assessment procedures' (Transcript 23). A colleague had clearly experienced similar difficulties, but advocated a non-negotiable template for teaching practice (Transcript 4) reinforced by a process of staff appraisal with the option to say to 'people who

are refusing ... to change ... You don't belong here, because this is what we really want [for our students]'.

All four managers wanted management tools to ensure compliance. Amongst the staff-based leaders, opinions on this topic were divided. Disappointed with progress on the *Dimensions of Learning*/Middle Years Program initiative, two believed that some of their colleagues were ignoring policy statements and curriculum requirements. One explanation was that teachers only partly understood the initiatives and, because they were misinformed, had become confused and negative (Transcript 37). The other view was that some teachers insist on preserving their independence at any cost. The example is cited of a subject department in which:

... two or three members of staff want their own little autonomous plot, and want to do it their own way. It's creating huge problems because you have kids coming through from one year to the next, and instead of having completed the total program for Year Eight or Year Nine, they've got little holes ... Whatever was supposed to have been built on those holes in Years Nine, Ten or Eleven can't be sustained. (Transcript 39)

Thus, two staff-based change leaders lost confidence in their colleagues. One recommended a gentler staff appraisal scheme than a manager might have proposed:

I don't think it has to be in the summative mode. I don't know that your pay or your job need be tied to it, but I certainly think we should have some kind of appraisal whereby people were really called to account to show they are really committed. If they won't, then there should be some way we can get alongside them and identify people who have a particular issue and work with them on that issue. (Transcript 37)

The other change leader, sceptical of claims about professionalism, autonomy and collaborative processes, argued for greater oversight by heads of department of the teaching



performance of their staff to ensure curriculum obligations were met (Transcript 39). These suggestions were not supported by the other three second-tier leaders.

The staff-oriented view of change was that compulsion was unnecessary. One made the point that, in her area of responsibility, 'people were bringing about change because they honestly could see it was going to work' and there was no need to 'force people' (Transcript 10). She commented later that she had observed schools in which pressure had been exerted to implement elements of a middle schooling program, but the outcome had been 'a disaster because teachers say the right things and then shut their door'. Her advice turns towards a learning experience based on collaboration on authentic unit development supported by funding, release time, and other resources. There was strong agreement with this approach from the third of the leaders in this group, who described the enhanced understanding and stronger collegiality that emerged from professional development activities at residential weekends.

It can be seen, therefore, that even within the group of change leaders there is diversity of opinion about the strategies to be employed in a change program. Again, there was little difference between schools in the range of opinions presented.

Four additional topics were raised in four or more interviews with the nine change leaders. First in this category was the value of promoting an ethos of collegiality, consultation and discussion as a positive context for innovation. This view was expressed by six leaders in all. Two of the four from the management tier are included here, one (from School A) because he strongly advocated in-house research as the essential precursor to any decision staff might be invited to help make about middle schooling (Transcript 4); the other (from School B) because he clearly deemed collegial discussion across subject boundaries so important for student learning that he welcomed the mechanism of interdisciplinary units in the Middle Years Program to ensure that such discussions took place (Transcript 8). Leaders from the

staff tier defined different benefits. They saw that effective learning of new approaches and skills was most likely to occur when a small group prepared to teach the next unit in their course—both proximate group and proximate task seem important. There was much to be gained from their personal involvement in collegial discussions; they were members of a team working towards a common goal rather than an intruder from the hierarchy (Transcript 37), they were available to gather feedback and clear up any misconceptions thereby forestalling errors and reducing vulnerability, they could model new approaches and maintain positive attitudes (Transcript 39), and as they moved from group to group could foster a cascade effect within the school (Transcript 10). In both schools there were variations between the approaches of management-based and of staff-based leaders. Without underplaying the role of management in the introduction of an innovation and in maintaining momentum in later stages, it appears that mentoring of colleagues by proximate leaders is a valuable aspect of the implementation and consolidation phases of change.

Two management-based and three staff-based leaders spoke about leadership itself. One—a manager—put the view that the school and its leaders had to have 'strength, because the inertia to stand still is huge' and should show 'the political nerve ... to step up and say we are going down this pathway' (Transcript 4). This, he suggested, might require a clear specification of what is required for students' learning experiences and—more controversially—what is not. Another person from the management group did not refer to his own role, but was critical of the leadership of one initiative where the prime figure 'hasn't played as strong a role ... as he should have' and a subordinate has 'for many reasons ... found [the task] difficult (Transcript 7). He praised the skills of one head of department, but was more cautious about others, suggesting that a stronger role for curriculum leaders would improve innovation.

Staff-based leaders appreciated the drive and focus inspired by those at the top of the school hierarchy, and noticed its absence:

I think the success of its introduction is very much a credit to him, because the staff respected him and his judgement. His passion and excitement carried a lot of staff along, and I suspect it was since his departure that some of the passion and drive has dissipated. We're trying to introduce something else now, and because of the personalities involved, it's not happening as I think it would be desired. So, I think a lot of it is to do with the leadership. (Transcript 39)

Nevertheless, as was suggested above, it is the proximate leadership that is most telling during the implementation stage. The success of the Inclusive Strategies Project at School A is largely attributable to its staff-based origins and leadership (Transcript 10). In School B similar perceptions of teamwork, support and encouragement are reported (Transcripts 37 & 39).

A useful image to capture the essence of pedagogic change depicts the individual teacher as setting out on a learning journey that differs from all others in point of departure, type of vehicle and average speed (Transcript 4). Ideally, then, change programs would allow for many individual journeys. Three change leaders—all from the staff tier—took this idea into account and pointed to the kind of learning experience frequently likened to postgraduate study—the supervision or mentoring of one or two learners by someone more expert in the field—as perhaps the most potent influence towards change. The staff-based leader of the Inclusive Strategies Program (Transcript 10) described her meetings with pairs of teachers who had similar teaching programs in the same faculty. During the day-long meetings, she and her colleagues listed both the skills to be learnt in a particular unit and the various ways to teach them, before turning to the actual content in which the skills would be embedded and using actual examples as models. Sometimes she would be joined by a head of department who was interested or wanted to be supportive. Occasionally, a pair of teachers might be

released for consecutive Wednesdays to intensify the impact of the program. In this way, twelve teachers were able to work with the leader over the course of a term without interrupting her regular teaching which had been reallocated to fit into the other four days of the school week. The costs of providing replacement teachers on these days were comfortably within the grant of \$2000 that had been received. Simple arithmetic will show that regular mentoring for a staff of, say, sixty, in pairs, twice in the first term and for two half days in each of the subsequent terms would be expensive, but feasible and almost certainly productive. Such an arrangement would improve on the voluntary sessions reported from School B, where useful work was accomplished but attendance was unpredictable because of other school duties, and came at the expense of participants' non-contact time (Transcripts 39 & 37) It might be noted that the useful description of learning as an individual journey came from a manager, but the advocates of mentoring (or coaching or counselling or modelling) were from the staff group of leaders.

The balance shifts in the other direction when the press for gathering ideas from beyond the school's boundaries is examined. One of the staff-based leaders actively sought ideas about inclusive strategies and explicit teaching from conferences, the literature, and her own post-graduate studies (Transcript 10). The other four from the staff tier concentrated on their immediate tasks, possibly because their role had not been to seek and introduce a program, as was described in Transcript 10, but to implement one that had already been determined by others, and their focus during the interview had been on their current responsibility.

Nevertheless, the outward-looking perspective was located with the managers. At School A, for example, the in-house interest in middle schooling was informed and strengthened by input from specialists at a nearby university (Transcript 4) and the Middle Years Program was adopted, not as a source of ideas, but as a global initiative that was a close match with what the staff had already determined, and would act to 'legitimize' that decision (Transcripts 4 &

23). Similarly, School B had sent representatives overseas to investigate trends in secondary education and to attend a training course for *Dimensions of Learning*. At about the same time another senior member of staff was researching the programs offered by the International Baccalaureate Organization with a view to adopting some or all of what was offered. Thus, two perspectives come together in the leadership teams—the local view, largely from staff members of the group, and the external or global view from management.

One further idea deserves detailed attention. The MYP Coordinator at School B had encountered angry resistance from one teacher in particular over an interdisciplinary unit to be done while his students were away on an outdoor education camp. Some heated words were exchanged before the teacher eventually went with his group to camp:

They came back on the Friday and he said, 'Oh, it works'.

I said, 'I don't know what you're talking about. What works?'

He said, 'Your old MYP works!'

'What do you mean, it works?'

'This interdisciplinary unit etc, etc...

So I said, 'Good! Next staff meeting you've got to get up and ... Don't tell me. Tell everyone else. Tell the people in your department. And when we print [a staff newsletter], will you write a little piece about your experience? He did. Now he turned around and with him quite a few colleagues turned around ... When people really celebrate some kind of success with the program, I try then to get those people to be the mouthpieces and also not to let it go at that, but to say, 'Hi, how are you? How's it going?' Get beyond the pleasantries and be specific: 'Did you find that worked as well? Can I have a bit of feedback?' (Transcript 37)

Here is a leader catching colleagues being successful and celebrating with them. Moreover, as she offers encouragement and deserved commendation, she enlists a former adversary—and some of his colleagues—in the promotion of the MYP. The sceptics were convinced because

they saw that students enjoyed the new experience and achieved good learning. Perhaps, after all, that is the most telling principle for educational change.

## 2. BARRICADES AGAINST INNOVATION

All nine leaders of change reported that they had encountered some resistance to the innovative programs for which they were responsible. They offered various explanations for a situation that many saw as predictable. Older teachers, in particular, were thought to remain 'performers' in the classroom (Transcript 23) as they continued to 'use the old way' of teaching that had become so familiar and secure (Transcript 1). New programs tended to 'destabilize the old ways' (Transcript 1) and 'deskill' experienced teachers (Transcript 16), leaving them to approach innovations with a sense of horror (Transcript 1). Then again, the urge to protect one's autonomy—an attribute by no means restricted to older teachers—is often found in teachers (Transcripts 37 & 39). Sometimes it masquerades as 'individualism' such as emerged in School A when it was a very small school with a lot of responsibility shared by a few (Transcript 23) and persisted into more recent times when the school was much larger. Sometimes it appears as 'territorialism' associated with long-standing faculty responsibilities (Transcript 7) or, perhaps, with classroom-based authority that can be traced back to earlier decades when multi-disciplined teachers covered a range of subjects with the same students. It may be true, too, that many teachers are innately conservative (Transcript 7) or that they tend to avoid taking risks (Transcript 4) or that they reject an authoritarian approach (Transcript 23) or, most distressingly, that they have 'closed minds' (Transcript 37). It may also be fair to suggest that a combination of all these factors can produce 'a culture of resistance' (Transcript 8).

These theories about innovation resistance seem to locate its sources indelibly in attributes of teacher personality, as for example when a manager advances 'laziness' as an explanation

(Transcript 7). Such a pessimistic view is not uncommon. Another manager anticipates that 'the teachers who have the greatest difficulty ... are the ones who don't grow philosophically, and you can't change a person' (Transcript 4), while a staff-based leader can describe three types of resistor:

There will be those who have their own strategies and methods and personalities that allow the kids to learn, and at which they are very successful. Then we have teachers, like in every school, who don't believe it's their responsibility to give kids the skills—they don't have the time and, if the kids haven't learnt them, they're not going to learn them. And then there are teachers who are probably not terribly efficient and just deliver content and don't challenge themselves—it's a small minority of course, but it's here. (Transcript 10)

An alternative explanation for innovation resistance is only lightly sketched by a few leaders. Almost inconspicuous amongst other, more commonly advanced explanations is a useful clue:

It's that ... fear of something different, lack of confidence to some degree, *not totally understanding*, having to give up more of your time, yet another layer of things—that's why some staff are resisting. (Transcript 39, my emphasis)

Here, a staff-based leader of the *Dimensions of Learning* project suggests that there has been a failure of learning. Moments later in the interview she emphasized the intellectual confusion some people experienced; 'It's not that it's not worth doing or really bad, but how is this different from what we are already doing?' Of course, there is a world of difference between the traditional classroom and one that fully applies constructivist, student-focused principles, but some teachers are unable to see it. That, no doubt, is why two leaders were disturbed by the patently incorrect claims that 'I do that now, anyway' (Transcripts 8 & 37). It also explains why glaring instances of ignorance about fundamental MYP curriculum patterns had been encountered: 'An applicant for the position of Head of Technology Studies, who had been in

the school for many years, told us at interview that he had never heard of Homo Faber'

(Transcript 7). Another leader reported:

On the staff PD day, I actually gave them a quiz. I just gave them a blank thing and asked them to draw the [MYP] octagon, and I said, 'Now, put in the subject areas. Now, what are the areas of interaction?' Very few could do it! I mean, we made a joke of it, but it's not funny, really. (Transcript 37)

It was an uncomfortable lesson for the staff-based leader who could not avoid the conclusion that:

People just don't read and take on board the stuff you give them. So, a lot of stuff goes spoofing around out there, but there's only a little knowledge, and we all know—as Mr. Pope told us—it's a dangerous thing. (Transcript 37)

Teachers had failed to learn! And the consequences had indeed been dangerous!

The case of the science teacher who had utterly misunderstood the fundamental principles of *Dimensions of Learning* (Transcript 48), another science teacher's superficial grasp of constructivism (Transcript 46), and the general failure to see—what seemed obvious to the leadership team—that the pedagogy of the Middle Years Program had much in common with *Dimensions of Learning*, are further evidence that misinformation abounded in School B. Interviews at School A did not bring the conjunction of pedagogy and assessment in the Middle Years Program into such tight focus, but there were forebodings that some teachers, at least, would complete the curriculum documentation and return to their longstanding practices behind the door of their classroom:

We have a framework—this is the topic, these are the criteria that the students are covering, this is where the links to other areas of the curriculum lie, this is the link to the core of the curriculum model (which is Approaches to Learning), and various other factors including



environmental awareness, Homo Faber—Man the Creator, and social and health awareness ...

It's like any program. You write it and get it ticked off, and do whatever you like and make sure the assessment meets the number criterion we now have rather than A, B, C, D. But I hear teachers say, 'Oh well, if you get a 7 it's an A, if you get a 6 it's a B'. The whole point is, 'Look, it's not supposed to be like that at all!' It's hard to break down teachers' ideas.

(Transcript 10)

Now, it is true that change leaders, like colleagues with other responsibilities, addressed topics which seemed to explain the difficulty of achieving innovation. They took up, for example, for each topic, in six of the nine interviews, the questions of time and workloads, leadership, and inappropriate administrative factors.

The staff-based leaders, in particular, but managers, too, said that teachers were 'busy' or had 'too much to do' (Transcripts 39, 8 & 10) and needed more time just to carry out normal duties. Another commented, more cautiously:

So, the issue is, I suppose, a time one. Well, that's what I'm being told: 'We don't have time to get hold of all the documents. We don't have time to absorb it all.' Quite frankly, I think at the moment that's fairly valid. I think staff here are certainly being pushed to the limit in terms of what they're being required to do. (Transcript 37)

Later, while acknowledging that she, herself, was frequently still working at school until eight or nine in the evening because she was interested in her administrative role, she observed that new tasks were being added to an undiminished teaching load without suitable recognition: 'They see this as having to replan, redevelop, reassess, reformat what they are already doing, without any time to do it or the organization saying, "We value what you do".' Another leader made the point that staff regarded the new duties as yet 'another layer on another layer—as being asked to do more rather than doing the same things differently' (Transcript 39). One of

the leaders described his own situation as an example of school-wide intensification of workloads:

I know I'm spending far more hours now than I ever have. I'm regularly working till one o'clock in the morning, and I know that goes right across the staff. That's a bit hard on family life. I think there are a lot of concerns about a staff that is stressed ... The problem is that there's a huge number of changes [to curriculum and assessment documentation] and at the same time we have to maintain everything else that we do around the place. We still have to go and teach the same number of lessons that we always had to do. In my case, I still have to get the examination administration done. We still have to organize that chess team or football team. So, people are having to find time in their own time to do all this. There are only twenty-four hours in a day. There are a lot of stressed people here. (Transcript 16)

Leaders from the management tier agreed that there was a time problem. One noted that the basic workload (six classes each with thirty students) meant that 'most teachers are really up against it for time' (Transcript 23). Another acknowledged that teachers were dealing with 'too many projects' (Transcript 8) but the school had maintained 'the same staffing levels' to cope with additional tasks unforeseen in the early stages of the Middle Years Program. There was a contrary view (noted above in the discussion of appraisal) that "time" might cover a range of other issues (Transcript 7) which might include personality factors and entrenched teaching practices. Some support for this view came from the staff tier of leadership:

So, when I get staff saying to me they can't do certain things or they're running behind in their course because of 'my' MYP, I turn it around and say, 'Well, what is it that you're doing?'  
'Oh, it's all this additional work.'

And I say, 'No, no, no! Let's go back to the process. The Interdisciplinary Units grew out of the curriculum mapping which was consolidating what you said you already did. So it's not in addition to—if it's what you said you were doing.' (Transcript 37)

Time, then, has to be seen as a contestable issue. Certainly, information provided in transcripts would suggest that many conscientious and innovative teachers are hard pressed. Nevertheless, it may also cloak other issues—not necessarily the negative 'laziness' of Transcript 7, but a more deeply located malaise associated with failed learning.

Some criticisms of leadership were aired during these interviews, too. It was suggested, for example, that heads of department had not exhibited a uniform commitment and contribution to one project, whose success lay very much in their hands (Transcripts 7 & 39). It was thought that the introduction of one innovation had been 'so strongly pushed' and some strategies had been so obviously promoted ahead of others, that teachers merely paid 'lip service' to 'politically correct' ideas (Transcript 23). There is the suspicion, however, that this criticism—though made by a leader from the management tier—may be a classic byproduct of misinformation. This is even more likely when it is noted that the leader of the criticized project herself commented on her own perception that she had been excluded from the professional development program, partly because time was required for basic information sessions relating to mandatory reporting of child abuse and occupational health, safety and welfare concerns, but partly, also, because:

In any dynamic, there can only be a certain number of loud voices, and my role in the school is not one—it's not a position of power, so I'm not in a position to be loud. (Transcript 10)

Earlier it has been noted that the momentum of a project may be changed, or indeed its energy dissipated by a change of leadership (Transcript 39) or by the perception that one of the original proponents had diminished his commitment (Transcript 7). Another question is raised when the interaction of leader and staff is considered; the following anecdote may raise more questions than it answers:

I deliberately teach [in a subject area considered likely to oppose the innovation] here ... and I deliberately teach it differently ... so the faculty was always going to be on the back foot—I think that's really important in [school] politics—if there is a faculty that's going to be your stonewalling group, you need to have a powerful person with a lot of influence in the middle of them, running counter, because it weakens their position immediately. So that worked brilliantly for me because every time they wanted to say, 'But, you can't do this', I am saying, 'Well, yes, I can. I'm one of you. I know your language and I know your arguments and I know the counter-arguments, and I can go toe to toe on every bit of rubbish that you want to try out'. So, they couldn't go public to attack because I was in amongst them. (Transcript 4)

It might be observed that this leader was the subject of some of the criticism recorded in other parts of this chapter. The anecdote takes the debate, however, to issues crucial to pedagogic change: Can the change be imposed or must it be grown? What level of challenge is effective? Ethical? Mention has been made elsewhere in this part of the chapter of the absence from both schools of an implementation plan (Transcript 7). This is an important comment, for such a document must surely emerge from considerations not only of what? and when? and where? and how much? but of why? and how? and who?

Vital considerations await administrators of schools contemplating pedagogic change. Some of them were foreshadowed in the previous paragraph. Transcripts used in this investigation point, however, to decisions that are believed by participants to have hindered the changes in which they were involved. It has already been reported that one effective leader of pedagogic change believed that her role was scaled back by management before the project had been satisfactorily concluded (Transcript 10). Another staffing decision drew criticism because two portfolios, covering very similar responsibilities and publicized in that way to win staff acceptance, were not entrusted to one person, particularly to the person already holding the confidence of staff for his work in one half of the role (Transcript 37). Then there was the situation in which the mathematics teacher preparing units for use with graphics calculators

was appointed to another position in the school that, in practical terms, precluded his further contribution to mathematics. It was also pointed out in two interviews that the introduction of newly appointed staff to *Dimensions of Learning*, which in early stages of the project had profitably occupied two full days, had been reduced to sharing a half day with the introduction to the Middle Years Program despite new appointments increasing at that time (Transcripts 16 & 37).

Further comments drew attention to the lack of suitable accountability structures to ensure the innovations were being implemented (Transcripts 16 & 23), lamented the negative impact of enterprise bargaining on the climate for innovation (Transcript 8), and disputed the wisdom of using large documents for communication with people too busy (or unwilling) to read them (Transcripts 7 & 37).

There were criticisms, too, of a specifically educational nature. The point was made that a school which had promoted a new approach to pedagogy had also allied itself to the International Baccalaureate Organization's diploma course and examinations which were deemed by some to be the antithesis of *Dimensions of Learning* (Transcript 16). This point was echoed in Part A by a recently appointed English teacher (Transcript 22) and is probably implicit in much of the resistance to the Middle Years Program. Of greatest consequence is the belief that, instead of addressing the widely felt time problem (Transcripts 7, 8, 10, 16, 23, 37, & 39), senior management had intensified the problem by planning (or allowing) several innovative programs to be launched in close sequence, leaving staff to deal with several simultaneous implementation stages (Transcripts 8, 10 & 16)

In short, the administrators of the school were under attack for not recognizing that innovation, for teachers, is essentially a process of complex re-learning, and for not applying a consistent, holistic and educational perspective to their decision making.

Finally, administrators can be accused of failing to apply the learning principles espoused in their school. In School A, for instance, where the starting point for change was a commitment to the development of each student as a learner, the focus was on learning processes, which were described in some detail in their course outline booklet. One of the aims, therefore, was to have each teacher's practice informed by current learning theory. School B, similarly, directed its attention to applying in classrooms the best of modern learning theory. The choice there was to adopt the model, based on recent cognitive research that was the basis for *Dimensions of Learning*.

If the very concise summary of learning theory provided by *Dimensions of Learning* were to be applied to both schools, some interesting questions might be put to school administrators:

- a. What steps were taken to assist teachers manage their attitudes to, and perceptions of, the new tasks they would undertake, and of the context in which they would be working?
- b. What was done to help teachers construct meaning for, organize, and store declarative knowledge, and construct models for, shape and internalize procedural knowledge?
- c. What activities were provided for teachers to help them deepen their understanding of what they were learning?
- d. How were teachers assisted to make meaningful use of their knowledge?
- e. What was done to help teachers sharpen such habitual ways of thinking as maintaining an open mind, seeking clarity, restraining impulsivity, and responding appropriately to feedback?

The answer, probably, is *something*! Nevertheless, the explicit strategies for promoting the thinking of learners would have to be assessed—in both schools—as inadequate, particularly with respect to the time-expensive activities of constructing understanding of information and

internalizing skills, and for the refining processes so important to sustaining learning. An implementation plan should have learning theory as its basis. Surprising as it may seem, embedded in each school's failure to apply learning theory to pedagogic change are the explanations for the misunderstandings, frustrations, anxieties, time problems, criticisms of colleagues and innovation resistance that have constituted one strand of this chapter.

On a more positive note, the other strand—the bridges to innovation—shows that many teachers—competent, conscientious, thoroughly professional people—can find a way around the barricades, often in spite of their work context.

## **D. STUDENTS**

### **1. BRIDGES TO INNOVATION**

In the student section of Chapter Five it became clear that students themselves were only minimally aware of the pedagogic innovations thought to be surrounding them, and that they exerted little influence on the outcomes of the projects. Nevertheless, there are grounds for suggesting that students are potential allies or adversaries for innovators, as well as being perceptive commentators on the process.

At the very least, students in the two schools being studied seemed content to comply with teachers' demands, betraying a practical theory of learning that ceded almost all authority on pedagogic matters to teachers. The pockets of discontent in Year Eight and the maturing insights of Year Eleven and Twelve students, however, point to a readiness to do things differently. This is revealed in the somewhat nostalgic accounts of learning experiences that had been engaging and valued. A Year Twelve student spoke enthusiastically about his Group Four Science Project:

I looked at the effect of caffeine on physical ability. Me and another guy got tanked up on coffee and ran up and down stairs. That's the one thing where they said, 'Go your own way and bring us back your results'.

*Can you comment on the quality of learning in that context?*

Well, the results were an abysmal failure, because I drink coffee a lot, so it had no effect on me, and the other guy is one of the fittest guys in the school. So, we didn't do a very good job of selecting out our variables, but we learnt a lot about how you go about doing a practical—especially about planning. (Transcript 15)

In the same interview, another student described her satisfaction with an art project: 'I had to develop the project, conduct different tests and come back with the conclusion. It was a good project and was very interesting' (Transcript 15). A third member of the group said of an English assignment:

We could come back and ask for suggestions, but most of it was just us doing it. I learnt so much more than probably I would have just doing it in class. I spent about twenty hours, but I was doing something I was interested in. (Transcript 15)

Words on the page offer only a faint suggestion of the lively enthusiasm that bubbled into these segments of the interview, but the experiences being described appear to have been rare. Indeed, a question that had earlier sought to find out how frequently they had been challenged to work something out for themselves rather than being told the principle or formula drew the response, 'That's a bit revolutionary!' (Transcript 15).

Students in other year groups seemed also to glimpse the potential for more active and engaging learning. A Year Eleven student, for example, supported her peers' wish for more facilities but added: 'Sometimes I think I need more research stuff and sometimes I think I could achieve something quite good like that' (Transcript 27). A girl in Year Ten probably



voiced the views of many when she described her appreciation of the opportunity to influence the choice of topics she investigated:

Some teachers sort of compromise with what they want to do and with what the students want to do. You might have an idea of what you want to do and it might be different from what the teacher said ... Sometimes a compromise is made where you do part of what the teacher wants and part of your own idea. (Transcript 30)

One of the most interesting, and possibly most relevant, responses was the joy and satisfaction that accompanied episodes of effective learning. Some of this was revealed in the extracts already quoted from the interview with senior students (Transcript 15), but the following exchange with Year Eight students best catches the freshness and sense of achievement that might be the innovator's strongest allies:

*What, would you say, were the best bits of learning you've done in recent weeks?*

S. 2: Art. We did print making. I did a dolphin. *What made you feel good about it?* I was happy with what I did. *Did you learn new things in order to do this?*

S. 2: (*confidently*) Yes. We learnt the process of printmaking and how to do it.

S. 3: Well, I finished all my sheets in maths. There's, like, eighteen to do. *Why pleased?* Most of the things we did, I've never done before, so I had to, like, learn them, like how to do algebra. I took weeks to do them—like all last term—eight weeks. *Relief or sense of achievement?* Bit of both. I'm relieved I've finished them all.

S. 1: In art we were starting to make puppets. We started collecting all the stuff. We're in the middle of it now. *Enjoying?* Yes! *Learning?* Yes! A lot. (Transcript 33)

In summary, the strongest student-based facilitators of innovation are likely to be the excitement, the fulfilment, and the recognition of successful learning promoted by the innovation. Other factors provide useful support. The content has to be seen as interesting and

worth the effort of learning (Transcript 42), and teachers must be able to strike some spark of motivation (Transcript 43). Surpassing all other factors is the academic trust that students place in their teachers—the comments reported in Chapter Five might well be repeated in this context: the Year Ten boy was content to 'sit and let things happen', while the Year Nine told us that 'We learn as we are taught to learn'.

## 2. BARRICADES AGAINST INNOVATION

As attention shifts to factors that block innovation, it soon becomes apparent that academic trust is a double-edged sword. In six of the ten group interviews (Transcripts 15, 27, 31, 33, 43 & 44) students indicated that typical learning activities required sitting, listening, writing notes and doing tests. Teacher talk may, at times, have been excessive, too; as Year Twelve students put it:

S. 2: ...the teacher talks all the time, and it gets really boring, like we say can we have a bit of discussion but he just keeps talking. You just get so bored, and people fall asleep. Maybe, sometimes, there should be class discussions on different topics.

S. 1: You need a balance between the two 'cos too much of either one and you won't get anything done

*Isolated or frequent occurrence?*

S. 2: Oh, I've had a few ... like, I remember back in Year Nine we had [a subject] where the teacher talked most of the time. It got boring. The class eventually went wild and was naughty all the time...

S. 1: We don't want that teacher back here again. (Transcript 15)

Nevertheless, in spite of hints of mutiny when provocation became extreme, students generally were compliant, especially when hand-outs and work-sheets filled lesson time with busy work (Transcripts 44 & 43), and success was attained through recall of information and practice of skills (Transcripts 15, 27 & 30). The group interviews indicated that, in many

classrooms, often over a span of years, teachers' and students' expectations had coalesced into a shared code that protected the *status quo*. It is the persistence of that prior code that poses the strongest barrier to any paradigm shift in pedagogy, for it continues to govern decisions made about learning.

Assessment policies are potent forces, also. Reflecting a more widely held idea, Year Ten students saw the purpose of their schooling as 'getting good grades'; to do so, they had to 'remember information and write it in the test' (Transcript 30). Such an emphasis on grades rather than learning outcomes, on memorizing rather than understanding, on teacher effort rather than student activity, can only strengthen resistance to approaches that advocate unfamiliar and threatening learning processes.

Even though there were spirited efforts to establish a new approach to learning in both schools, powerful influences locked students into the existing paradigm. For example, few of them had more than a passing interest in the actual processes of learning, deeming this to be the territory of parents—"They can tell us" (Transcript 33)—or teachers—"The teacher gives you information and you store it" (Transcript 31)—rather than a matter of great relevance to their daily activities. Careful explanations of *Dimensions of Learning* or the goals of middle schooling had been lost on most students interviewed, or at best recalled in part and incoherently. Year Twelve students, for example, struggled to describe an innovation which was thought to have influenced their five years of secondary education:

S. 4: All I know about it, it was some five-step thing ...

S. 6: Occasionally you see a poster about it.

S. 3: I haven't seen much, really.

S. 6: The only teacher I know that told me about it is [Name of enthusiastic advocate of the innovation]. She had a—she mentioned it—that—no, I don't think she's ever mentioned it ...

S. 5: To be perfectly honest, I'd forgotten about it...I think they've got it all written up in the front of the diary, but we just flick through those pages. (Transcript 13)

In a similar conversation, Year Eleven students offered useful insights into student thinking about changes in their school:

S. 1: The problem with change is [that] most often it's gradual, so most often you say, 'Oh, they're doing that next year', and it sort of happens gradually, so you basically make an impact for the younger people. If you're at the senior level, you impact on them more than for yourself ... the change can't be immediate; it has to be got round ...

S. 3: I think some of the changes that are going to be made will happen after our time.

S. 2: The other thing is, like the air pollution thing, any change made now is going to make a difference down the track. If you want to make a difference now, it should have started before you had a chance to. It's always going to keep changing because what we think's good now will change by the time the Year Eights become the Year Twelves. (Transcript 40)

The indication here is that students may have assumed a future orientation for the current innovation, and that their involvement needed only to be avuncular and altruistic, failing therefore to see the immediate gains available for the quality of their own learning.

Given that students recognize the capacity of enthusiastic teachers to lead them into new experiences—as, for example, the Year Ten student enjoyed Geography because 'the stuff was worth learning ... and the teacher just made the subject interesting and showed us just lots of things about it and the way to do it' (Transcript 42)—questions have to be asked about why students weren't engaged by discussions about their important and daily tasks. Students have some suggestions to explain this state of affairs. The perception of *Dimensions of Learning* held by Year Twelve students was that the program attracted mere lip service from many

teachers, and was, therefore, only partially and spasmodically implemented (Transcript 13).

Year Eleven students put the same point more devastatingly:

S. 1: With certain teachers, like, I mean, you notice [*Dimensions of Learning*] with some teachers who, sort of, not ram it home but just say this is declarative knowledge. One thing that just sort of triggered something in my mind is [Name] who—she would use that even now, even though I'm doing the IB. She would still use that or say this is Dimension Five. I had [Name] a year or two ago; he would do that too, but some other teachers, especially the new ones, don't have a clue, to put it bluntly. You wouldn't know they were doing anything different or whether they knew anything about it or not ...

S. 3: Just then you were saying about graphic organizers [as one of the Dimension Two strategies for organizing declarative knowledge]. The only time that I really encountered that wasn't from a teacher—it was from a past Year Twelve who came back to speak to the school and said he remembered all his stuff for Year Twelve exams (he was dux of the school) and he put posters up on his walls of what he wanted to know ...

S. 2: I think ... students have become—they're not really sure what it is—unless they actually sat down and read it for themselves and tried to get a grasp on what it is, they don't—because they see a bit here and a bit there and then a whole chunk of it here, and they have to, sort of, piece it together to try and get an idea of what *Dimensions of Learning* is. (Transcript 40)

Moreover, it became clear during this last interview that a four-hour mini-course for Year Ten students about students' use of *Dimensions of Learning* had been cut from the previous year's program, thereby signalling an administrative shift of priorities and, probably, a confirmation of student perceptions that the place of *Dimensions of Learning* in the curriculum was not really important, despite what school leaders might be saying to the contrary. A Year Eleven student summed up the significance of the innovation when he suggested that *Dimensions of*

*Learning* was 'not ... the icing on the cake, it's the eggs and stuff (Transcript 40). However, a Year Twelve student went to the heart of the matter:

S. 5: It kind of sounds as if it's a little bit—it's almost as if the teachers are saying it because they feel, like, it needs to be said, and it's not really enforced, if that makes sense. It's touched on at the beginning of the year, and now when exams are coming up it's touched on again, but it doesn't really seem like it's a really enforced kind of concept. (Transcript 13)

Students were aware, however, of the contrast between the low profile of *Dimensions of Learning* and the frequent reminders about assessment procedures required by the International Baccalaureate Organization:

S. 4: I first heard about this *Dimensions* thing in Year Seven, but—no offence—I don't think it's done anything, because teachers haven't used that within their teaching as much. If they were to incorporate that into everything they do, I think we'd look at the *Dimensions of Learning*, then attack whatever we were doing. It's just that the IB—because it's a whole lot of different criteria—because we keep using that criteria and get reminded to use it, we know it's different and approach something differently and to how we learn it. Because *Dimensions of Learning* isn't really talked about much at all, I think that's why it hasn't had too much of an impact. (Transcript 40)

Senior students from one of the target schools appear to be saying that pedagogic innovation is more likely to be successful if students are helped to perceive the immediate, personal gains that they might achieve, and if the basic principles are clearly understood and kept at the forefront of their minds. No students, in any of the ten group interviews, gave any indication that these conditions had been met in their experience. Again, the question has to be asked: Why did these things not occur? Other questions inevitably follow: Are the students correct when they claim that their opinions are not valued or heeded by teachers and parents (Transcripts 15 & 40)? Do teachers remain silent about the principles of learning because they

believe that students are incapable of understanding them? Do teachers avoid public descriptions of new teaching approaches in order to protect themselves from accusations of failure? Is it a reluctance to share power? Or is there an outmoded but intransigent collective code operating in this situation?

## **E. MAJOR THEMES EMERGING FROM THIS CHAPTER**

It is significant that experienced teachers reported experiences of pedagogic change similar to those described by trainee teachers. For the experienced teachers, too, their existing practical theory of teaching shaped their initial response to the new idea, and led them into assimilating, accommodating, preserving or resisting. In fact, the process of change might have been more exacting for them, because their practical theory had been fortified by the overlay of years of successful, traditional classroom experience.

Nevertheless, it is the collective code for learning and teaching in a school that is one of the most important factors in school-wide pedagogic change. As one head of department put it, 'coming up with a united approach' (Transcript 45) was essential to changing teaching and learning practices in his department. In recent pages, however, secondary students have shown how infrequently they were aware that their teachers were, supposedly, applying a newly espoused code in their lessons. Moreover, in Chapter Six, trainee teachers listed an intransigently conservative ethos as one of the barriers to innovative teaching encountered during their field experience. Renovating the collective code, therefore, appears to be one of the highest priorities in the process of pedagogic change.

It seems likely that a change of code will begin with numerous individual revisions of practical theory. As elements common to individual theories begin to coalesce into, say, a shared code for a subject department, that code is likely to reflect the distinctive character and context of that department, rather than of the whole school. Thus, there remains yet another

level of integration to be achieved. The various levels of leadership in Schools A and B, probably, are tacit acknowledgement of this.

Interviews with experienced and credible teachers present their guidelines for changing both individual practical theories and a collective code. They say that a new theory of teaching, which meets identified student needs and possesses educational merit, should be introduced in accordance with the stages and principles described in Part A of this chapter. The essential task for teachers is to translate the new theory into syllabus-based, student-centred activities. This usually entails collaborative planning with colleagues, often from the same subject area and with the guidance of the head of that department. Teachers and heads of department agree that such an approach simultaneously promotes individual learning, develops a shared code, and increases the pool of relevant resources in the department.

Leaders of change at the school level also accept that the subject department is the appropriate location for nurturing pedagogic change. They are not so confident of success. As they probably combine a closer acquaintance with the new theory and a broader view of school events, they exhibit frustration at their colleagues' misunderstandings, confusions and resistance, and are critical of their failure to learn. They share with heads of department a desire for stronger accountability procedures—not to preserve collegiality in the proximate group, as some heads of department might wish—but to ensure compliance with school policies.

A different approach emerges from the interviews with classroom teachers and heads of department. In general, they argue that innovation resistance arises out of the nature of the task. While maintaining every aspect of a teacher's busy workload, they must take on complex learning in pursuit of a goal that, they suspect, is likely soon to be superseded. Indeed, time poverty is a concern to teachers, heads of department, and change leaders alike. Senior managers may be applauded for their vision and advocacy, but are criticized for maintaining



(for financial reasons, no doubt) large classes and onerous teaching assignments, while creating additional documentation tasks that are not seen to be crucial to the current pedagogic innovation.

In terms of the change principles proposed at the end of Chapter Two, this chapter emphasizes a number of points:

- i. Classroom teachers, heads of department, and leaders of change confirm both the complexity of the process of pedagogic change in secondary schools, and the importance of adopting appropriate learning strategies to achieve the desired changes. Special attention is drawn to the stages of thorough investigation, careful introduction, candid decision making, timely and inclusive implementation, well supported consolidation, and evaluation of progress.
- ii. To achieve necessary changes to practical theories and the collective code, a learning program that meets the diverse needs of potential 'accommodators', 'assimilators', 'preservers' and 'resistors' is essential.
- iii. Teachers confirm that a small group of close colleagues is their choice for the learning context. This is not a matter of mere preference, but recognition that collegial support and joint efforts to apply a new theory of teaching to familiar topics best promote effective learning. The presence of a trusted mentor facilitates learning and guards against misinterpretation.
- iv. Change leaders were well-informed advocates of their particular innovation. There appears, however, to have been no program in either School A or School B to help leaders develop their understanding of the change process they were to manage, or to assist the integration of their individual efforts. Consequently, there were some variations of approach within each school.

- v. Structural and administrative factors posed formidable barriers to innovation. Decisions to adopt a number of initiatives in close sequence were linked with significant documentation tasks, while basic teaching responsibilities continued without any reduction in intensity. Perhaps some claims of time poverty masked refusal or severe disequilibrium but, for many, the exacting workload was a genuine concern. It deprived conscientious teachers of the time and mental resources for critical and creative reflection on their own teaching. At the same time, heads of department and change leaders were troubled by the difficulty of finding space in busy days for meetings of the proximate groups in which learning would most effectively take place.
- vi. Students in Schools A and B remained an untapped resource. They responded positively to occasional episodes of spirited learning, but were prepared, generally, to comply with their school's expectations for teaching and learning. In this respect, they can not be considered typical of all secondary students (as some of the anecdotes brought back by trainee teachers from their field experience have testified). Nevertheless, the students interviewed for this study were interested in learning *per se*, and well-disposed to innovative approaches to pedagogy. In the situations under investigation, they did not constitute barricades against educational change.

Chapter Eight looks back over this and the preceding chapters to formulate a possible solution to the problems of pedagogic change, and to consider how things might have been done differently in Schools A and B.

# 8

## Dealing with Disparities

From the participants themselves, this investigation has sought frank accounts of their experiences at the centre of pedagogic change, and thereby to turn yet another spotlight on the conundrum that educational change poses.

Chapter One has referred to the imperative placed on schools to consolidate, to renovate and to innovate simultaneously—a constraint that precipitates some of the problems reported in subsequent chapters. From the scholarly advice of experts in educational change, school management, and staff development, Chapter Two has collated principles that one might expect to shape programs of pedagogic change in secondary schools. The contexts and processes for gathering the perceptions of participants have been described in Chapter Three.

The intense, largely individual experiences of 183 trainee teachers have been reported in Chapters Four and Six. Chapter Four indicated that the trainee teachers tended to assimilate, accommodate to, preserve, or resist a proposed new pedagogy. Their response was largely determined by the nature and strength of their own pre-existing practical theory of teaching, although age, gender and subject specialization might have been factors, too. Chapter Six emphasized how conducive to pedagogic change a powerfully relevant alternative theory, applied to authentic tasks within the proximate group, can be. The same chapter warned, however, that one's own intransigently conservative existing theory, or a collision between a budding new theory and the stern reality of many traditional classrooms, might effectively block innovative pedagogy.

Accounts gathered from leaders of change, heads of department, classroom teachers and students amidst the hurly-burly of two busy secondary schools have been the focus of Chapters Five and Seven. Chapter Five suggested that experienced teachers also confronted a new theory of teaching in one of the ways identified by trainees, that is, by assimilating, accommodating, preserving or resisting. Again, there is potential for age, gender, or subject specialization to combine with a robust existing theory to facilitate or hinder pedagogic change. Indeed, because these people have developed a reliable classroom methodology over a number of years, their strategy for dealing with a new paradigm might, more appropriately, be termed *re-learning* to emphasize the inherently more difficult transition they had to achieve. This last point seems not to have been universally grasped by the leaders of change, who largely determine the change procedures to be adopted. Students, who had the potential to influence the outcome of change initiatives through their enthusiasm or recalcitrance, remained largely unaware of change despite some attempts to include them in the process.

Perhaps the most significant issue emerging from Chapter Seven is the recognition that sporadic innovation in a few classrooms falls well short of any school-wide enhancement of student learning. It is not that innovation requires detailed compliance with a blueprint for teaching—Handy and Aitken (1986) warned that such conformity was unlikely in any profession—but shared commitment to common goals, strategies and language are as important as flair and creativity. Teachers, heads of department, leaders of change and students have contributed useful information about factors that they perceived to have either fostered or hampered the development of an innovative code of learning and teaching in their school.

Each of Chapters Four through Seven has concluded by showing how each chapter has supported, amended or refined the principles proposed at the end of Chapter Two. In this chapter, in Part A the major issues noted earlier are drawn together into a restatement of

principles for achieving pedagogic change in secondary schools. In Part B disparities between these principles and the practices noted in Schools A and B are discussed, while the implications of this study are considered in Part C. Part D draws attention to some of the wider implications of the investigation.

## A. SEVEN PRINCIPLES FOR PEDAGOGIC CHANGE

New interest in meaningful, student-centred learning sits precariously amidst other calls for teachers to pursue improved test results and to intensify the counselling, caring and behaviour managing aspects of their role. Furthermore, against the centuries-old belief that they merely distributed knowledge, teachers are now expected to promote active learning experiences through which students construct their own understanding. Information gathered in this investigation suggests that a change of such magnitude depends on the application of seven guiding principles:

1. **Re-learning.** Pedagogic change is best understood as a process of learning to apply new concepts and skills to a familiar routine.
2. **Practical theory and collective code.** Pedagogic change requires that teachers examine their personal practical theories of learning and teaching, and refine or revise them as necessary. The availability of a convincing alternative theory is crucial. In the secondary context, school-wide improvements in student learning are most likely to be achieved when teachers implement common aims, and apply compatible methodologies.
3. **Response to change.** For each person involved in change, the process is likely to contain elements of assimilative and accommodative learning, as well as preserving what is valued from the prior theory and resisting some aspects of the new one. It is the preponderance of one or other of these aspects that shapes the nature of the individual

response to innovation and determines the individual starting points and modes of travel on the re-learning journey. In any particular innovation, at any time there will probably be groups who are predominantly 'assimilators', 'accommodators', 'preservers' or 'resistors'.

4. **New theory in proximate group.** Teachers are most likely to succeed in reviewing their existing practical theory and establishing a new collective code, when they work with a trusted mentor (often the head of department) in a small group of close colleagues to examine the new learning theory and to apply it to their own immediate teaching duties.
5. **Managing the process.** Leaders of change will be most effective when they understand that pedagogic change is a complex learning task that requires differentiated approaches suited to the diverse needs of 'assimilators', 'accommodators', 'preservers' and 'resistors'. The process is likely to extend over several years as the learners pass through the stages of thorough investigation, careful introduction, candid decision making, timely and inclusive implementation, well supported and well sustained consolidation, and evaluation of progress. Moreover, it is not sufficient for change leaders to be thoroughly grounded in the details of the innovation itself. The prevailing school climate, levels of staff morale, and change strategies developed within the leadership team should be taken into account.
6. **Structural and administrative factors,** which have the potential to support or impede pedagogic change, deserve careful consideration when the implementation plan is being developed.
7. **Students.** By their enthused engagement with their learning or their apathy or resistance, students can either intensify or sabotage a change of pedagogy. The innovation strategy should extend to establishing an authentic, informed partnership between students and teachers.

These principles are consistent with the findings of recent decades of research into educational change. Moreover, their insistence on treating change as a process of learning, their focus on learning contexts, and their advocacy of student involvement may have special relevance for Australian secondary schools in the twenty-first century. Perhaps of greatest interest is the realization that each of the seven factors listed above is not merely one element in the process of pedagogic change—it exists in a symbiotic association with the other six and, with them, contributes to their combined effect or, more precisely, their synergy. Ideally, then, a program of pedagogic change would seek to keep all participants and all the relevant issues in harmonious interaction.

## **B. THE DISPARITIES**

The programs of pedagogic change described in this study—the introduction of beginning teachers to their new profession, and the professional development of established teachers in Schools A and B and their students—were valid, located in respected institutions, competently led, and directed towards improving both the teaching of committed professionals and the learning of cooperative students. They were courageous initiatives that must have started with a higher than usual expectation of success.

The fact remains, however, that the outcomes seem to have been patchy and problematic. One explanation of this situation might lie in the difficulty of achieving the desired combination of the seven principles outlined above. Indeed, it is likely that essentially different understandings of, and approaches to the tasks were unwittingly applied. Some examples will clarify this point.

**Change as re-learning.** Most trainees immersed in their postgraduate studies had no doubt that they were engaged in a challenging process of learning. Indeed, they demonstrated that the re-learning of each participant in pedagogic change would have a distinctive profile of

assimilative learning, accommodative learning, preservation of compatible parts of the former theory, and resistance to incompatible parts of the new theory.

The same appears to be true of experienced teachers, too. Within the schools, however, 'learning' was rarely used to explain how change occurred. Some certainly referred to changing the mind set or getting the head around a new idea, but there was sparse recognition that new knowledge had to be understood, integrated with what was already known and stored, and that new skills had to be modelled, shaped and internalized. Perhaps trainees were right when they suggested some teachers no longer saw themselves as learners. The inability to see change as a learning process is revealed in the sceptical description of a new idea as 'so much paper put out ... with different labels' (Transcript 34) or, more disturbingly, by the assumption that change was a rather mechanical replacement of one theory with another, a process alleged to have negligible impact on lesson preparation (Transcript 20).

*A serious misreading of the nature and extent of the process of change—and the consequent unidimensional planning—may, therefore, be the first of the disparities to be countered.*

**The process of change.** In terms of school-wide innovation, it is probable that a successful process will feature the stages of investigation, introduction, decision making, implementation, consolidation and evaluation. Both schools appear to have handled the early stages competently. With one notable exception—the MYP at School B—preliminary investigations were thorough. Well-resourced set pieces introduced the innovations and won support and interest, while decisions reflected the consultation that preceded them. Less convincing was the implementation phase, possibly because teachers were underprepared (Transcript 17), possibly because emphasis shifted too quickly from the revision of teaching principles to the completion of documents essential for accreditation. The stage of consolidating *Dimensions of Learning* was gaining belated attention in School B at the time of interviews for this study (seven years after the idea was first raised), but School A's initial



interest in inclusive teaching strategies and a middle school pedagogy had been overtaken by the need to rewrite subject syllabuses and assessment and reporting rubrics. Moreover, because planning for implementation and consolidation was sketchy, resources of time, personnel and funding, for which adequate budgetary provision had been made early in the project, were scarce during the stages when the full application of the innovation might have been ensured.

In terms of evaluation, one interesting science-specific analysis of the effect of *Dimensions of Learning* on student learning (Thompson, 1999) was conducted at School B, but there appears to have been no continuing, formative appraisal of progress in either school.

*The absence of planned and well-resourced stages for implementation, consolidation and evaluation constitutes another significant disparity.*

**A methodology for change.** It has been argued that the personal and group journeys towards new understandings of teaching are most likely to be completed successfully when an alternative theory is applied to an authentic task within the proximate group and under the tutelage of a trusted mentor.

Obtaining the alternative theory posed no problems. Trainee teachers certainly found theirs in the textbook for their course. Established teachers in School A, assisted by experts from a nearby university, distilled their own principles for middle schooling from a survey of the literature, while staff of School B found their alternative in the material prepared by the authors of *Dimensions of Learning* and IBO documents. Similarly, it was easy to find an authentic task. Trainees could reflect on recent field experience, and established teachers had only to turn to the next programmed unit of work with one of their classes.

Disparities begin to emerge, however, when attention is directed to the operation of the proximate groups. It is true that they existed structurally. Trainees had been allocated to focus

groups (sub-sets of tutorial groups), and established teachers naturally belonged to the faculty in which they taught. Collegiality developed easily within these groups. What was often missing, however, was a mentor—as one teacher put it, a 'champion' of the innovation (Transcript 20)—whose informed views might correct misunderstandings and promote the new theory as the *raison d'être* for all their writing and discussion. For trainees at the university, financial stringency meant that there was no such person available for focus groups. One permanent member of staff (supported by two tutors, each employed for four consecutive hours on one morning of the week to conduct course tutorials with four groups of twenty or more trainee teachers) was hard pressed to maintain contact with 150 students, let alone be available to all for intensive counselling. *In any national planning for innovative schools, the provision of adequate resources for teachers' pre-service and in-service education will be a key issue.*

The situation was somewhat better in the schools where leadership fell automatically and appropriately on the head of department. Nevertheless, it has already been noted that heads of department were neither totally informed about, nor unanimously committed to, all the change programs they would be called upon to implement. They differed among themselves on some aspects of innovation, and they had not been able to work towards a shared understanding of the various responses and strategies that might be applied. That is to say, they had not been helped to articulate their own practical theory for managing pedagogic change in their department, nor had they developed with other heads of department a shared code for change.

Moreover, at the level of practicability, heads of department would have to rely on frequent meetings with individual teachers or groups with common responsibilities for, say, a particular year group or topic. Competition for scarce gaps in meeting rosters meant that access to staff meeting times was rationed to an ineffective minimum. Meetings with colleagues during non-contact time were restricted by the line structure of timetables, and by a

personal teaching assignment that was only one teaching set less than those of other members of the faculty. Heavy commitments to the co-curriculum took possession of much time after classes finished each day—a time, anyway, that some heads of department were reluctant to claim from colleagues whom they perceived to be already overloaded. Heads of department dealt with the situation by opening their homes to staff, by meeting at weekends, or by doing most of the work themselves.

*Two more disparities have emerged. First, no steps had been taken to ensure that heads of department were equipped for their mentoring role by gaining command of the new theory ahead of their staff. Second, they were not enabled to develop a full comprehension of the change process or discuss strategies and build support for themselves within their own proximate group.*

**Administrative factors.** Achieving profound changes of teaching methodology in Schools A and B was complex and difficult, for the process depended on fostering revisions of practical theories and collective codes—which for some teachers was almost tantamount to a change of identity. The situation called for wise mentoring, encouragement, and support through the most serious of the inevitable, change-induced stresses. In fact, although new tasks were required, teaching duties remained unchanged, and necessary meetings had to be scheduled out of hours. The difficulties were accentuated by the adoption of several initiatives in quick succession, with the result that teachers were dealing with several, simultaneous stages of implementation and consolidation. Not surprisingly, priority was given to tasks that demanded documents be prepared in accordance with strict deadlines. The lack of time to deal with an intensified workload is probably the strongest theme running through the interviews with teachers.

*The administrative disparity, though unintended, is obvious. Workloads suppressed both opportunities and incentives to innovate. Emphasis on documenting new curriculum and assessment requirements diverted energies from a tight focus on student learning.*

**Leadership.** It is tempting to level criticism at the more senior leadership teams in both schools. In one instance, it seems possible that consultation followed decision-making. In another situation, a leader may have adopted a deliberately hostile relationship with members of the faculty within which he worked. Judgements on these matters should wait for a wider collection of information.

It is clear, however, that the leadership groups tended to see more quickly than others the potential benefits of pedagogic changes, and were able to provide the drive towards new goals. Staff-based leaders were powerful, though time-limited, influences for change when they coached their colleagues at the strategic level, as distinct from the practical level of the subject departments. On the other hand, they appear to have had difficulty in persuading colleagues that the writing tasks were not drudgery but logical and productive steps in the process of change. While aware that teachers were approaching the limits of their innovative capacity, leaders were unable to solve the time problem. They allowed multiple innovations to compete for scarce human resources. They tended to become impatient at the slow, uneven and sometimes flawed implementation of innovative teaching theory, searching for solutions in assessment procedures, the summative mechanisms of appraisal, and perhaps dismissal.

It has to be said that these leaders probably had no alternative. They were juggling new educational goals, parental demands for good outcomes, students' needs, industrial issues, the school's standing in the community, media interest in any newsworthy shortcomings, their own professional integrity—and financial constraints.

One part of the solution to these problems may be a revised understanding of what leadership of change entails. Just as the leadership team of School A argued their way to new employment policies and strategies (Transcript 4), both schools might have teased out the nature of the change they were contemplating and its human and administrative consequences.

*Perhaps the ultimate disparity has been reached. Like all other participants in change, leaders needed to review their personal practical theories for leading change and, with the guidance of a trusted mentor, to develop and apply a collective code to their immediate task of leading change.*

### **C. ALIGNING THE DISPARITIES**

This investigation set out to examine what it was like to be inside a major educational innovation. Participants have demonstrated the strongly formative influence of a personal practical theory—the individual bundle of prior experiences, learning and values that currently defines the principles by which a person conducts some aspect of his or her life. The focus on practical theories of teaching has made it plain that a change of individual pedagogy is, in fact, a revision or a reconstruction of the practical theory of teaching that currently applies in a particular person's life. Inevitably, that change is preceded by some alteration to the experiences and/or learning and/or values of that individual. Logic demands, therefore, that the process of pedagogic change address the individual's current practical theory of teaching and the elements that have shaped it, largely by making them all explicit and open to reflective consideration.

It must be observed, however, that every human being possesses countless other practical theories—some more coherently developed than others—that shape behaviour in varied circumstances. Many of these theories may seem at first totally disconnected from the teaching theory. Others may have obvious relevance, notably the theories that deal with

learning (a complementary but by no means equivalent concept), human development, assessment, reporting, communication and pastoral care. To assert that pedagogic change is a complex activity is to acknowledge that not only the practical theory of teaching, but many other practical theories have to be modified. Warring theories are likely to prevent change. Those who have been described as 'accommodators' or 'resistors' in earlier chapters are very real, vivid and typically human illustrations of this complexity.

There is another level of complexity to be considered. Established teachers have reported that solo attempts at innovation are not only exhausting and lonely, but largely unproductive. A unified approach, shared strategies, a common vocabulary and sustained effort are much more likely to achieve school-wide, long-term changes in student learning than isolated and sporadic encounters with a few enthusiasts. A program of pedagogic change must certainly address individual amendments of practical theories, but it must also, simultaneously, provide for the amendment of the collective codes of teaching, learning, and everything else that may be relevant. The multiple facets of individual change are probably multiplied again by the number of participants in that change and the number of theories to be amended. If the lattice of intersecting practical theories is incomplete, the gaps may generate inconsistent or incompatible approaches that produce disparities such as those described in Part B of this chapter.

In fact, this investigation has fixed attention on the widely differing understandings with which participants approached changes to learning and teaching methodologies. The disparities range from doubts about the capacities and roles of students, through questions of how teachers can best promote and assess student learning, to notions of what such changes involve and what processes are most likely to be effective.

Put simply, the central task of pedagogic change is to draw all these disparities into shared codes of learning, teaching and changing. Teachers have to cultivate a change in both their

personal practical theory and their collective code of teaching. Students have to cultivate a change in both their personal practical theory and their collective code of learning. Both teachers and students have to understand one another's new role in teaching and learning. That, however, is not the end of alignment. Leaders of change may have to reconstruct their own practical theory of change in the light of their understanding of how teachers and students are able to modify their practical theories and collective codes. Administrators who make financial and managerial decisions have to be in tune with the other collective codes being developed in the school. Successful change at the deepest level is achieved when collective codes for teachers, students, change leaders and administrators coalesce into a whole school code that provides unity of purpose and cohesive practices.

The previous paragraph presents important implications for those who would change pedagogy in schools.

The means of aligning disparate theories is best described as re-learning. The learning process, for change agents as well as for teachers and students, must provide differentiated pathways that cater for variations in individual starting points and dominant learning modes. The strong recommendation from teachers is that their learning—about teaching or changing—is most effective when working with small groups of colleagues, but this investigation has shown that a trusted mentor must also be present to guide the application of new theory to actual tasks. The role of the mentor, as Handal and Lauvas (1987) have suggested, would be to support the planning, implementation, and critique of new units of work while consistently articulating the theory that should undergird teachers' thinking.

Schools tend to rely on out-of-hours meetings for administrative tasks and structured professional development activities. However, the complex learning process that brings school-wide pedagogic change requires considerably more time for tutorial-style group work with a mentor than is usually allocated. It is very likely, therefore, that schools undertaking

pedagogic change will need to allocate additional resources in order to release teachers, heads of department and change leaders from teaching duties at appropriate times. This should occur in accordance with a detailed, long-range, but flexible innovation plan that gives due prominence to establishing a shared code of change as well as to dealing with practicalities.

#### **D. SOME WIDER IMPLICATIONS OF THIS INVESTIGATION**

**Beyond students and teachers.** Implications of a change of pedagogy reach beyond this study's focus on teachers and students to include staff responsible for educational resources, financial management, property maintenance and community relations. Practical support from those work areas and their informed representation of innovative projects to the wider community, are likely to be of considerable benefit. The same is even more relevant to parents, who rightly insist on being informed contributors to matters that influence the learning of their children. The need to describe and justify changes continues to ripple outwards to include former students, potential employers, media outlets, and the local community. In this way, poorly informed, negative perceptions, which might raise external barriers to the acceptance of innovation, can be forestalled.

**Student involvement.** The major initiatives discussed in this thesis recommend that students be regarded as valuable allies for pedagogic change rather than encumbrances. The IBO requires that their middle years' curriculum feature Approaches to Learning as a precursor to the senior subject of Theory of Knowledge. The *Dimensions of Learning* model also values students' informed involvement in the learning process, and urges teachers to encourage metacognition in their pupils. Elsewhere, the incorporation of students into school restructuring programs is a feature of the Coalition of Essential Schools (Sizer, 1992) where students may write their version of the Nine Common Principles of Essential Schools, mingle



constructively with teachers at the annual conferences or, indeed, attend their own student-led conferences, and be informed guides for visitors to their schools.

Are these or similar features characteristic of Australian secondary schools? In some, probably, but we can't be sure how widespread they are. Perhaps it is time for an extensive census of students' school experiences, modelled on the broad and longitudinal study of 1,000 children mentioned by Csikszentmihalyi in his interview for *Educational Leadership* (Scherer, 2002, p. 12).

**Teacher training.** Trainee teachers have reported that encounters during field experience with strong-willed traditional teachers or disengaged students have constrained them into applying the teaching theories that exist in particular schools, rather than the constructivist ideas espoused in their course. Given that over half of the trainees were already finding it difficult to throw off the traditional teaching modes of their own schooling, the conflict between new theory and old practices was not merely exacerbated by field experience, but resolved in favour of the conservative approach. A new level for alignment is revealed, for it seems counter-productive to pursue contradictory strands of professional education. A new approach to field experience, in which carefully selected and appropriately remunerated mentors are employed, is becoming urgent.

**Further research.** cursory mention has been made of issues that deserve more detailed treatment than the scope of this study has allowed. Of some interest is the question of what degree of disequilibrium would urge a resistor into accommodation. Does the threat of sanctions (recommended by some leaders) promote a mere façade of compliance? Again, it might be useful to explore the potential of a traumatic experience of accommodation to forestall further development of practical theory through assimilation. There is also the issue of complacency amongst assimilators; a comparison between their self-reports and observations of their practice might show whether there is a tendency for them to stop short of

a complete grasp of the new theory on the grounds that the broad framework of innovation seems familiar.

**Relevance to other professions.** The discussion of practical theories and ways of changing them is not reserved solely for educators; indeed, it is concerned with basic human attributes. Schon (1971) chose instances of dynamic conservatism from the fields of medicine, the armed services and education, thereby emphasizing how commonplace it is for human beings to struggle against change that is too far ahead of their existing understanding. It is probable, therefore, that all human beings will be predominantly assimilators, accommodators, preservers or resistors when they face a new way of carrying out familiar tasks. Thus, the notion of aligning disparate practical theories for change may have relevance for many other professions and human activities.

**Large-scale innovation.** Australian educators, business leaders and politicians say they need people who bring to the work place detailed knowledge, higher-level thinking skills, and the capacity to deal creatively with unstructured problems. There have been a number of interesting government initiatives to encourage these qualities over recent decades—the National Project for the Quality of Teaching and Learning (NPQTL), the South Australian Curriculum Standards and Accountability (SACSA) Framework, and currently the National Institute for Quality Teaching and School Leadership (NIQTSL) are examples. Competent people have presented relevant ideas in quality publications, but—to judge from the two (highly advantaged, it must be said) schools described in this study—their work is still to have its full impact on what happens in classrooms around Australia. Perhaps this is yet another area for alignment; there may be considerable benefit in forging stronger links between curriculum theory and change theory.

This study differs from Sarason's view in that it has not found the predictable failure of educational change. It does assert, however, that educational initiatives that depend on

changing teachers' fundamental beliefs and ingrained behaviours begin in the mind of each teacher. Such a process is no mere substitution of one set of principles for another, achieved with the same ease as one might replace an ink cartridge in a printer. It demands complex re-learning, and, perhaps, for more than half of all teachers who participate in this level of change, it will be professionally and personally daunting.

The need for a new pedagogy has been affirmed by this study of two succeeding schools seeking to be innovative. Interviews have indicated that intellectual challenge and excited learning are rarer experiences for secondary students than many would like them to be. A remodelling of student learning is necessary. This in turn demands a paradigm shift in teaching. At the moment, such a task will severely tax the resources of any one school, especially as it faces diverse and difficult tasks.

Achieving significant nation-wide changes to pedagogy is a project of giant proportions. It must target both the training of people about to enter the teaching profession and the in-service development of teachers now in the schools and likely to remain there until retirement. This study has proposed guidelines that apply to both sectors, but they are costly in terms of providing the mentors and learning opportunities that ensure change actually happens. We know what to do—help people change their practical theories for doing what they have to do. We know how to achieve this—learn collaboratively through coming to understand how the new theory will work in practice. We know where the change will take hold—within proximate groups in individual schools. It remains to be seen whether governments will take the point that change happens in the minds of people, and then provide the structures and resources essential to individualizing the learning process that brings new knowledge and different skills. Like Popham (2002/2003, p. 83) as he urged his own nation to 'undertake bold NASA-like risks to reform [his] nation's schools', we should be urging Australian

governments to commit 'sufficient fiscal and human resources' to a powerful national program to revitalize all our schools.

There is little more to add, other than to repeat Lawrence Stenhouse's comment to a Summer Institute on Teacher Education at Simon Fraser University in 1980. He had just referred to a recently completed study in the United States, which had concluded that students were taught well when their teachers were interested in science and skilled in teaching it. He went on:

That good teaching is created by good teachers may to some of you seem self-evident to the point of absurdity. You don't need eleven case studies across the American nation—or me to fly to Vancouver from Norwich—to tell you that. But the implications of this self-evident proposition do not seem to be widely grasped. (Stenhouse, 1985b, p. 104)

In presenting another largely self-evident conclusion, one can't help wondering whether much has changed between 1980 and 2005.

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Appendix 1: Summary of Memoir

Aligning Disparate Practical Theories for Pedagogic Change in Australian Secondary Schools

SUMMARY OF MEMOIR

1. Student Identification ..... I.D. V.01(F): 038  
 2. Year: ..... 2000  
 ..... ~~2001~~ Tuesday / Wednesday / ~~Friday~~  
 3. Gender: M / ~~F~~ 4. Age Group: ~~30~~ / 30 - 39 / > 40

5. Subject Specialization:  
 (a) ~~English~~  
 (b) LOTE  
 (c) Mathematics  
 (d) Music  
 (e) Science  
 (f) ~~SOSE~~  
 (g) P.E.  
 (h) Other: .....

6. Current practical theory articulated clearly? ..... YES / NO  
 7. Aware of change in practical theory? *Requires pt. of professional & constantly develops* YES / NO *Development p.5*  
 8. Describes nature of change in practical theory? ..... YES / NO

*\* know = requires new studies that cannot be suggested  
 no major revision of prev. theory will be undertaken.*

9. Factor(s) promoting change?

(a) Dissatisfaction with own schooling	p.	
(b) Perceived needs of students <i>Individual values, attitudes, beliefs &amp; context</i>	p.1	✓
(c) Inspirational Mentor	p.	
(d) Colleagues' influence	p.5-6	✓
(e) Formal studies in education (e.g. S-TIC) <i>lead us back!</i>	p.3 <i>passion</i>	✓
(f) Particular theorist e.g. Steiner: .....	p.	
(g) Head of Faculty or field experience supervisor	p.	
(h) Field experience - success/trauma?	p.6	✓
(i) Expectations of school	p.	
(j) Frame factors in school e.g. assessment	p.	
(k) Other: .....	p.	

*... space to try out  
 ... real studies*

10. Comments on barriers to changing practical theory? ..... YES / NO

*Theory must be tightly linked to practice (see p3 context) in order to have relevance & applicability.*

## Appendix 2: Reverse side of Summary of Memoir

p.1: Before this year I would <sup>not</sup> have said that I had a theory of teaching, but having <sup>not</sup> completed two teaching blocks and a year of university study focusing on such ideas, I have the beginnings of a personal philosophy of education.

§6: I personally feel that the two five-week blocks were more important in allowing me the space to try out some of the theories and teaching methods introduced to us. In my opinion, this practical component gave us the chance to deal with real situations, many of which are not convincingly covered by a textbook exemplifying a particular machine solution.

§5: It [personal theory of teaching] is by no means concrete and is likely to be ever evolving.

§3: The course has generally been interesting, although not highly relevant in some instances. At times I found some of the content frustrating, but maybe it will be of some use to me in the future. However, I do admit to finding some of the material relevant to my own teaching practice, as I feel most comfortable with. (I need to find what works for me & what I feel most comfortable with).

§6: I found that the [group presentations] I remembered most clearly, and the information that stayed with me, were presented using a variety of techniques: techniques were involved, group work was utilised, and information was broken up into bite-size chunks that were conveyed with a minimum of jargon. On the flipside, the presentations I found boring and incomprehensible were those that featured a succession of presenters who stood up the front and 'droned' on for a lengthy period of time. Unfortunately I found this to be a little too frequent for my liking. It made me aware of not repeating that course of action or inaction, in my classroom.

§ closing comment on §6: ... I will continue to learn new things as long as I am in the job. I do not believe that these things will be in theory, leaving the classroom, both on purpose or, most likely, by accident.

ID	Charge	M/F	Age	Spec	w/f	PT	a	b	c	d	e	f	g	h	i	j	k
V.00:001	D	F	<30	Sci	-	Y		+	+	+	+			+			
V.00:002	N	F	<30	Mus/SOSE	-	Y					+		+				
V.00:003	Y	F	30-39	LOTE	-	?				+	+		+				
V.00:004	Y	F	<30	Eng/SOSE	-	?				+	+			+			
V.00:005	Y	F	<30	Sci	-	?					+			+			
V.00:006	D	F	>40	Eng/LOTE	-	Y				+	+			+			
V.00:007	D	F	30-39	AdultEd	-	Y			+		+						
V.00:008	D	F	30-39	Eng	-	Y				+	+			+			+
V.00:009	Y	M	30-39	RE	-	Y					+			+		+	
V.00:010	Y	M	30-39	Ma	-	Y		+			+			+		+	+
V.00:011	N	M	30-39	Sci	-	Y											
V.00:012	Y	F	<30	LOTE/Mus	-	Y				+	+		+	+			
V.00:013	N+	F	<30	LOTE	-	Y								+			
V.00:014	D	M	<30	SOSE/Eco	-	Y					+						
V.00:015	D	F	30-39	LOTE	-	Y				+							
V.00:016	D	F	<30	LOTE	-	Y		+		+	+						
V.00:017	D	M	<30	Ma	-	Y		+		+	+						
V.00:018	Y	F	>40	Ma/Sci	-	Y				+	+			+			
V.00:019	D	M	>40	Eng	-	Y		+			+						
V.00:020	Y	F	<30	BusStud/Eco	-	Y			+		+						+
V.00:021	D	M	30-39	Ma	-	Y					+						+
V.00:022	D	M	<30	LOTE	-	Y					+						
V.00:023	D	F	<30	LOTE/SOSE	-	Y	+	+		+	+			+			
V.00:024	Y	F	30-39	Eng	-	Y		+	+		+			+			
V.00:025	Y	F	30-39	Sci	-	Y					+						
V.00:026	D	F	<30	LOTE/SOSE	-	?Y					+						
V.00:027	D	M	>40	SOSE/RE	-	Y		+				+					
V.00:028	D	M	<30	Ma/Sci	-	Y					+	+		+			
V.00:029	N+	F	30-39	-	-	Y	+					+					
V.00:030	Y	M	>40	Ma/RE/Art	-	Y					+			+			+
V.00:031	D	F	<30	Eng/SOSE	-	Y				+							
V.00:032	Y	F	30-39	Mus/SOSE	-	Y			+		+			+			
V.00:033	D	F	<30	Ma/Sci	-	Y				+	+			+			
V.00:034	Y	M	<30	Eng	-	Y					+			+			
V.00:035	Y	F	<30	Ma/Sci	-	Y				+	+			+			
V.00:036	Y	F	<30	Ma/Sci	-	Y					+			+			+



ID	Change	M/F	Age	Spec	w/f	PT	a	b	c	d	e	f	g	h	i	j	k
V.00:037	Y	F	>40	LOTE	-	Y		+			+						
V.00:038	Y	F	30-39	Eng/Sci	-	Y		+			+			+			
V.00:039	Y	F	30-39	Ma/Sci	-	Y	+	+			+						
V.00:040	Y	M	<30	LOTE	-	Y				+	+						o-s st
V.00:041	D	F	30-39	Ma/Sci	-	Y					+						
V.00:042	Y	F	>40	Eng	-	Y	+				+						
V.00:043	Y	F	>40	Sci	-	Y					+			+			
V.00:044	D	F	<30	LOTE/SOSE	-	Y					+						
V.00:045	D	F	<30	Sci/Mus	-	Y			+	+	+			+			
V.00:046	D	F	<30	Eng/SOSE	-	Y	+	+	+	+	+						
V.00:047	D	M	>40	Ma/Sci	-	Y				+	+						
V.00:048	-	-	-	-	-	-											
V.00:049	Y	F	>40	LOTE/Mus	-	Y			+		+			+			
V.00:050	N	M	30-39	LOTE/SOSE	-	Y					+						
V.00:051	D	M	>40	-	-	Y					+	+					
V.00:052	D	F	-	-	-	Y				+	+						
V.00:053	D	F	<30	Eng/LOTE	-	Y					+						
V.00:054	D	F	30-39	LOTE	-	Y					+						
V.00:055	D	F	<30	Mus	-	Y					+						
V.00:056	D	F	<30	LOTE	-	Y					+						
V.00:057	D	M	30-39	Sci/LegSt	-	Y					+	+	+				
V.00:058	D	F	-	Eng/ESL	-	Y				+	+						
V.00:059	Y	M	>40	Eng/SOSE	-	Y					+						
V.01:001	Y	F	< 30	Mus	w	Y	+	+			+	+		+			
V.01:002	Y	F	30-39	Ma/Sci	f	Y			+	+	+	+		+			
V.01:003	D	F	< 30	Sci	f	Y					+	+					
V.01:004	N	F	30-39	LOTE	f	Y		+			+	+					
V.01:005	D	F	< 30	Mus	f	Y				+	+	+					
V.01:006	N	F	< 30	LOTE	w	Y?											++
V.01:007	Y	M			f	?	+										
V.01:008	Y	F	30-39	LOTE	w	Y											
V.01:009	Y	M	30-39	LOTE	w	Y					+			+			
V.01:010	D	F	< 30	LOTE	w	Y				+	+			+			
V.01:011	D	F	> 40	LOTE	f	Y*				+	+			+			+
V.01:012	Y	F	< 30	Ma/Sci	w	Y					+			+		+	
V.01:013	N	M	< 30	Eng	w	Y?								+			

ID	Change	M/F	Age	Spec	w/f	PT	a	b	c	d	e	f	g	h	i	j	k
V.01:014	D	M	30-39	SOSE	w	Y					+						
V.01:015	D	F	< 30	Eng	w	Y				+	+	+					
V.01:016	--	--	--	--	--	--											
V.01:017	Y	M	< 30	Ma/ScI	f	Y					+			+			
V.01:018	N	M	> 40	Ma/ScI	f	Y	++	+					+				
V.01:019	D	F	< 30	Eng	w	Y				+	+	+		+			
V.01:020	Y	F	< 30	Eng	w	Y		+		+	+			+		+	+
V.01:021	Y	F	< 30	SOSE	f	Y		+			+			+			
V.01:022	N	M	< 30	Eng/SOSE	w	?											
V.01:023	D	M	< 30	Eng/SOSE	w	Y		+			+	+		+			
V.01:024	D	F	< 30	Mus	f	Y?					++			++			
V.01:025	Y	F	> 40	LOTE	f	Y					+			+			
V.01:026	Y	M	< 30	ScI	w	Y	+			+	+		+				
V.01:027	Y	F	< 30	Eng/SOSE	f	Y				+	+	+		+			
V.01:028	Y	F	< 30	Eng	f	Y*					+	+		+			
V.01:029	Y	M	> 40	ScI	f	Y				+	+			+			
V.01:030	D	F	< 30	Mus	w	Y				+	+	+		+			
V.01:031	D	M	< 30	Ma/ScI	w	Y-	+I			+	+	+		+			+I
V.01:032	Y	M	30-39	Ma/ScI	w	Y	+I			+			+	+		+	++
V.01:033	Y	M	> 40	Ma	f	Y?					+						
V.01:034	D	M	30-39	LOTE	w	Y	+					+		+			
V.01:035	Y	F	< 30	Eng/SOSE	f	Y	+				+		+	++			
V.01:036	D	F	< 30	LOTE	f	Y				+	+						
V.01:037	D	F	30-39	SOSE/LOTE	w	Y				+		+		+			
V.01:038	D	F	< 30	Eng/SOSE	f	Y		+		+	+			+			
V.01:039	D	M	< 30	LOTE	f	Y					+						
V.01:040	D	F	< 30	SOSE	f	Y					+			+			
V.01:041	Y	F	< 30	SOSE	f	Y				+	+						
V.01:042	Y	F	30-39	MUSIC	f	Y					+						
V.01:043	Y	M	> 40	AdultEd	f	Y										+	
V.01:044	D	F	> 40	SOSE	w	Y				+	+						
V.01:045	D	F	< 30	Ma/LOTE	w	Y	+	+	+	+	+						
V.01:046	Y	M	>40	ScI	w	Y	+	+	+		+	+					
V.01:047	N	F	30-39	Ma/ScI	f	?			+I		+?						
V.01:048	Y	F	< 30	LOTE	w	Y					+	+					
V.01:049	Y	F	< 30	Eng/SOSE	f	Y		+			+	+		+			

ID	Change	M/F	Age	Spec	w/f	PT	a	b	c	d	e	f	g	h	i	j	k
V.01:050	Y	M	30-39	Sci	f	Y					+			+			
V.01:051	N	F	< 30	SOSE/Mus	w	Y					+						
V.01:052	Y	M	30-39	Eng	w	Y	+	+		+	+						
V.01:053	Y	M	< 30	Mus	w	Y	+	+		+	+						
V.01:054	Y	M	< 30	Eng	f	Y	++	+			+			+			
V.01:055	Y	M	> 40	Sci	f	Y					+						
V.01:056	D	M	< 30	Sci/SOSE	f	Y				+	+						
V.01:057	D	M	30-39	SOSE	w	Y		+		+	+						
V.01:058	Y	F	< 30	Sci	w	Y					+			+			
V.01:059	Y	M			f	Y											
V.01:060	Y	F	> 40	SOSE	f	Y											
V.01:061	D	F	< 30	Sci	w	Y				+	+						
V.01:062	D	M	< 30	Eng	f	Y				+	+	+	+				
V.01:063	N	M	< 30	Sci	w	Y	+			+	+			+			
V.01:064	N	F	30-39	Ma/Sci	w	N											
V.01:065	D	F	< 30	LOTE/SOSE	w	Y					+	+		+			
V.01:066	Y	M	< 30	Eco/Acc	f	Y					+			+			
V.01:067	Y	F	< 30	Eng	w	Y	+				+			+			
V.01:068	N	M	30-39	Ma/Sci	f	Y											
V.01:069	Y	F	< 30	Ma/Sci	w	Y					+			+			
V.01:070	D	M	< 30	Ma/Sci	f	Y		+		+	+	+		+			
V.01:071	D	F	< 30	Mus	f	Y											
V.01:072	Y	F	30-39	Eng	w	Y					+			+			
V.01:073	D	M	30-39	SOSE	w	Y					+		+	+			
V.01:074	Y	F	> 40	Eng	w	Y					+	+	+	+			
V.01:075	Y	F	< 30	Eng	f	Y					+						
V.01:076	D	F	> 40	LOTE	f	Y				+		+		+			
V.01:077	Y	F	< 30	Eng/SOSE	w	Y	+			+	+	+	+				
V.01:078	Y	F	< 30	LOTE/SOSE	w	Y					+		+	+			
V.01:079	D	M	30-39	Ma/Sci	w	Y	+				+		+			+	
V.01:080	N	M	< 30	SOSE	w	N				+	+			+			
V.01:081	Y	F	< 30	Mus	f	?											
V.01:082	Y	F	< 30	LOTE	w	Y				+	+			+			
V.01:083	D	F	30-39	Mus	f	Y											
V.01:084	D	M	< 30	Eng	f	Y			+	+	+	+		+			
V.01:085	D	M	< 30	Mus	f	Y*	+				+	+		+			

ID	Change	M/F	Age	Spec	w/f	PT	a	b	c	d	e	f	g	h	i	j	k
V.01:086	Y	F	> 40	Eng	f	Y				+		+	+	+			
V.01:087	D	F	< 30	SOSE	w	Y				+	+	+					
V.01:088	D	M	< 30	Mus	f	Y											
V.01:089	N	M	< 30	Sci	w	Y					+		+				
V.01:090	D	F	< 30	Mus	w	Y	+			+	+	+		+			
V.01:091	--	--	--	--	--	--											
V.01:092	Y	F	< 30	Eng/SOSE	w	Y					+						
V.01:093	Y	F	< 30	Ma	f	Y	+				+	+					
V.01:094	D	F	> 40	Eng	f	Y	+				+						+
V.01:095	N	M	30-39	Eng/SOSE	f	Y?					?						
V.01:096	N	M	30-39	Ma/Sci	w	Y					+						
V.01:097	D	F	< 30	LOTE/SOSE	f	Y											
V.01:098	Y	M	< 30	Ma/Sci	w	Y	+										
V.01:099	Y	F	> 40	Ma/Sci	w	Y			+						+		
V.01:100	D	F	< 30	Ma	f	Y				+	+		+	+			
V.01:101	Y	F	30-39	LOTE	w	Y	+				+			+	+		
V.01:102	N	F	< 30	Ma/Sci	w	Y				+	+						
V.01:103	Y	M	30-39	Eng	f	Y					+						+
V.01:104	D	F	< 30	Eng/LOTE	f	Y			+	++	+		+	+			
V.01:105	Y	M	< 30	SOSE	w	Y					+						
V.01:106	D	M	< 30	Ma/Sci	f	Y				+	+	+					
V.01:107	N	M	> 40	SOSE/LgSt	f	Y	+		++				+				
V.01:108	Y	F	< 30	Sci	f	Y					+						+
V.01:109	D	M	< 30	Mus	w	Y	+			+	+						
V.01:110	D	F	> 40	Eng/SOSE	f	Y				+	+						+
V.01:111	D	F	< 30	Mus	w	Y	+				+						+
V.01:112	Y	F			f	Y					+						
V.01:113	D	F	< 30	Eng/SOSE	f	Y				+	+						
V.01:114	Y	F	< 30	LOTE	w	Y	+	+			+						+
V.01:115	D	M	30-39	Eng/SOSE	w	Y	+					+					+
V.01:116	Y	F	30-39	Eng	w	Y		+		+	+						
V.01:117	D	F	> 40	SOSE	w	Y		+			+	+					+
#Deleted	#Deleted	#Deleted	#Deleted	#Deleted	#Deleted	#Delete	#Delete	#Delete	#Delete	#Delete	#Delete	#Delete	#Delete	#Delete	#Delete	#Delete	#Deleted
V.01:119	D	F	< 30	Eng/SOSE	w	Y?				+	+						
V.01:120	D	M	> 40	LOTE/ESL	f	Y	+				+	+					+++
V.01:121	N	M	> 40	Eng/SOSE	w	Y					+						+

ID	Change	M/F	Age	Spec	w/f	PT	a	b	c	d	e	f	g	h	i	j	k
V.01:122	N+	F	< 30	Eng/SOSE	w	Y											
V.01:123	D	F	> 40	Eng/SOSE	w	Y			+	+	+						
V.01:124	—	—	—	—	—	—											
V.01:125	D	M	< 30	Ma/Sci	f	Y				+	+						+
V.01:126	Y	F	< 30	SOSE	f	Y					+						+
V.01:127	Y	F	> 40	Sci	f	Y					+						+
V.01:128	D	M	> 40	Ma/Sci	f	Y					+						+
V.01:129	D	F	30-39	Eng/Music	w	Y			+	+	+	+	+	+			

Appendix 4: Summary of Teacher Transcript

**Aligning Disparate Practical Theories for Pedagogic Change**

SUMMARY OF INTERVIEW WITH EXPERIENCED TEACHER

ID: TRANSCRIPT.....14

Role Teacher Gender: M / F Subject Specialization: English / Mathematics / Science

Accept innovation?

Comments relevant to my seven principles?

1. Changes to previous practices?	<u>Consolidation of prior exp, Y/D/N+Y/N</u>	p. 1, 2, 6
2. Strategies for individual and collective theory change implemented?	<u>Student activity; relevance, interest</u> <u>Collaboration &amp; student focus</u>	p. 3, 4, 5, 18
3. Learning—assimilative and/or accommodative? Alternative theory?		p. 12, 13, 14*
4. Theory + practice in proximate group?		p. 13-16.
5. Leaders understand change process? Manage context & culture suitably?		p. 16
6. Adjustments to structural and administrative factors?	<u>Time to train students</u>	p. 9
7. Students involved?	<u>Reflection in journal, feedback, trust</u>	p. 6, 18, 19, 20

8. Need for alignment?

9. Factor(s) promoting or hindering change?

(a) Influence of own schooling	<u>Text-based - but good about it</u>	p. 2-3,
(b) Perceived needs of students	<u>They see me as boring; how they learn</u>	p. 3, 4, 10
(c) Inspirational Mentor	<u>Model for group work,</u>	p. 5
(d) Colleagues' influence	<u>Support from faculty, small groups</u>	p. 3, 5, 9, 14-16
(e) Formal studies in education	<u>ISB course, initial training, ind. Sch course</u>	p. 3-4, 4-5, 9,
(f) Particular theory or theorist	<u>how children; JP experience</u>	p. 4
(g) Head of Faculty or other supervisor		p.
(h) Classroom experience - success/trauma?	<u>Other middle school</u> <u>Primary school being in process.</u>	p. 5
(i) Expectations of school		p.
(j) Frame factors in school e.g. assessment	<u>Prep for US, 11 US, grad prep,</u> <u>Before us and school abroad</u>	p. 3, 9, 16,
(k) Other:	<u>Privacy of classrooms (P. 8). traditionalists silent &amp; troubled(?) (P. 7).</u>	p.

Additional comments:

lecture method doesn't work with heartwo! (P. 5)

... D H 16-19. attached.

## Appendix 5: Text for Student Information Sheet

8 September 2000

Dear

I write to ask whether you would join me in a research project that, I believe, may have considerable relevance for education and the wider community.

Since retiring from a long involvement in secondary education, I have been spending part of my time as a Ph.D. student and enjoying the experience very much. I have been particularly interested in the intensifying demands being made of secondary educators, especially in the areas of active learning, problem solving and creative thinking. I have been seeking explanations of why some schools and some teachers readjust their methodologies to accommodate new goals more readily than others seem to.

My current project is to visit a number of Australian secondary schools where there have been significant efforts to change pedagogy. In [your school's] case, I am directing special attention to the school's identification and application of the learning processes and teaching methods appropriate to a middle school. From the experiences common to successful schools, I suspect there will emerge guidelines that are helpful to others just setting out on the path to change. I anticipate finding an approach that blends recent research findings on educational change with what is now known about the influence in the classroom of the practical theories of learning held by individual students and teachers.

One aspect of my investigation has been to enlist experienced teachers, who have been closely involved in pedagogic change, as expert commentators on the process. But I am equally interested in the perspectives of students, who also were important participants in the project.

[The Principal] has kindly granted his approval for me to include [name of school] amongst the schools in my study. Interviews with teachers have started, and I am now arranging meetings with students.

Students' names have been gathered at random from class lists. You are amongst those selected. I hope to meet you in a group of Year 8 students during the lunch break on Monday, 9 October. It is likely that our meeting place will be [name of room], but please check closer to the day. I understand, however, that official school activities will have priority at that time over discussions with me. During the group discussion, I will seek students' perceptions of the changes undertaken in the Middle School over recent years. We will also explore the factors that are seen to be either helping or hindering the implementation of changes.

The group discussion will be recorded on audiotapes. After transcription, I will return the text of those parts of the interview that involved you for checking. The information provided will then become part of the data to be analyzed in the thesis that I intend to submit for the degree of Doctor of Philosophy in the University of Adelaide. The supervisor of that thesis is Professor Kevin Marjoribanks.

I would emphasise my commitment that the anonymity of published data will be strictly preserved and that the audiotapes and transcripts will remain absolutely confidential. I may be asked by [the Principal] to present a very broad indication of trends, but no details of any conversation with me will be released without the specific approval of the participant.

Participation in this project is absolutely voluntary. I believe, however, that the project will provide important new insights for all involved in education and I believe that your contribution will be important. For that reason I earnestly hope you will be able to assist me.

If there are any questions about the project that you would like to discuss with me, I can be contacted at any of the following addresses:

Would you please deliver to your parents/guardians the almost identical letter that I have written inviting them to join you in signing the Consent Form to indicate that you have their permission to take part in the study.

I shall be most grateful if you, too, would indicate your decision on the Consent Form, which may then be returned to the Principal's Personal Assistant, [Name], in the Main Administration Office before 1 p.m. on Friday 15 September.

With best wishes and keen anticipation,

## Appendix 6: Students'/Parents' Consent Form



THE UNIVERSITY OF ADELAIDE  
GRADUATE SCHOOL OF EDUCATION  
EDUCATION BUILDING.  
ADELAIDE SA 5005.  
TEL: (08) 8303 5628 FAX:(08) 8303 3604

### Successful Pedagogic Change in Australian Secondary Schools

#### Consent Form

Name: ..... House: ..... Year: .....  
[Name of school]  
[Address of school]

- I agree to participate in the research project entitled *Successful Pedagogic Change in Australian Secondary Schools*. I understand, however, that I may withdraw from the project at any time.
- I give permission for my contributions in group discussions to be recorded on audiotapes and transcribed. I understand that strict confidentiality will be maintained for the audiotapes and transcripts of my comments.
- I understand that the transcripts of my comments in group discussions will be returned to me for checking before they become part of the data to be analyzed for this project. I agree to review the transcripts and, following the review, to confirm or withdraw my contributions.
- I give permission for my confirmed transcripts to be used in the research project and to be cited anonymously in the thesis or any other publication or presentation that reports on the project.

Student's signature: ..... Date: / / 2000

I give permission for .....(Student's name) to take part in the study entitled *Successful Pedagogic Change in Australian Secondary Schools* under the conditions set out above.

Parent's/Guardian's Signature: ..... Date: / / 2000

Please **return** this form to the Principal's Personal Assistant, [Name], in the Main Administration Office before 1 p.m. on **Friday 15 September 2000**



Appendix 7: Summary of Students' Transcript

SUMMARY OF INTERVIEW (Student)

at [redacted] School

Year Group 12

Date: 5.9.2000

1. Have you heard about (the change project) at (your school)?  
IB. DoL IT?

These students were in Year 6 in 1996.

2. How would you explain to a visitor to your school what the project is/was all about?

Rich - explains IB (100) diff to STEE, makes you do more on your own. <sup>P2 - trouble at 150.</sup>  
170 Students discuss relative merit of IB/STE. 190 Ben describes SAC-P2 (A  
prog for 6 weeks; rest theory!) Id - out - students are nervous exercises, but  
diff for more conceptual parts of course "read it yourself".  
250 Excellent learning vs IB learning.

430 DoL (early info - then silence!) may be used, but students not aware. <sup>440 or</sup> sessions in  
3. In any of your classes, have you seen (the change project) in action? Please describe.

450 answers suggest sporadic, early encounters with DoL, but no regular, conscious articulation of DoL principles. — DoL supplemented by IB?

470 DoL propaganda for board - no link to students.

Year 11 - little else  
480 - not applied  
70% much talk  
Grand Year 8-199.

4. Do you think any aspects of your school life have changed because of the project?

490 real test - learning influenced by DoL? Some notable ideas, but awareness of understanding but DoL doesn't seem to have permeated their class work during Year 8-10. Little challenge.

A few teachers incorporate DoL.  
500 others say lip service - concept not enforced.  
\* 600 no idea of how to do. 620 difficult to change.

DoL = publicity? Not brought into process? 630 teachers talk about learning

5. Have you formed any opinions about the worth of the project?

275. Typical lesson? Lots of class, teacher goes through book, & you write down. Students often afraid of various methods. 290 Ben talks about understanding.

\* 300 don't know formulae but don't understand them.  
320 Variability of need for help in understanding. 340 last 2 years - diff style of teaching  
360 Differences in teaching at US. diff culture & school

thes.int.stu

Tape Number:

13

760 3rd step afraid - decl? <sup>more?</sup> seen as valuable, but not applied to school learning.

| Take did not ... about

Appendix 8: Student Response Matrix (reduced from A3)

STUDENTS	Chapter 4	Chapter 5			OTHER
	PRACTICAL THEORY	INVOLVEMENT	BARRIERS	FACILITATORS	
15-JS	Has some knowledge we put effort in for others understand ask for help. 17:20	Minimal. Not interested at time. 16:00	Strength of existing IT. Presentation of theoretical results.	Good experiences with discussion, motivated - want more. 27:00	Knowledge of grad level. Student opinions. 25:00
27-JS4	Attend class. Listen. Really want to learn. Teaching from a thin board. Give us an idea. 10:11	No previous understanding or understanding. Graduate provided but not by name & not in interpretation. 15:00	Teacher & student line shared & strong equivalent to instructor teaching. 27:15	A lack of definition. (See 27:07) - some second hand, confusion. 27:00	Recent class. Better understand. Hope to take in class. High satisfaction.
30-JS3	Just because he has some of good callous. 30:00	Understanding not. No evidence of subject. 30:00	Emphasis on facts, notes, not on theory, information. 30:00	Some frustration with assignments. 30:11	Less spontaneity than in class. Some advice on the way. 30:00
31-JS2	Must listen to teaching in order to learn. 31:00	Was not able to follow. 31:00	Strength & importance of existing theory. 31:00	Complexity might be challenged. 31:00	Spent. How did it go? 31:00
33-JS1	Believe learning is not in books. 33:00	Not inspired by world. 33:00	Students not concerned to learn. 33:00	Historical of different. 33:00	Learn who level. 33:00
13-KS5	Wasn't understand. 13:00	Wasn't understand. 13:00	Spencer's philosophy. 13:00	Animal will in. 13:00	Need to expect. 13:00
40-KS4	Wasn't understand. 40:00	Wasn't understand. 40:00	Why do teachers. 40:00	Is promote. 40:00	Student. 40:00
42-KS3	It's a bit. 42:00	Wasn't understand. 42:00	Teacher. 42:00	Wasn't understand. 42:00	Importance of. 42:00
44-KS2	Wasn't understand. 44:00	Wasn't understand. 44:00	Head on. 44:00	Some. 44:00	Wasn't understand. 44:00
43-KS1	Wasn't understand. 43:00	Wasn't understand. 43:00	Old. 43:00	Models. 43:00	Wasn't understand. 43:00

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